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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Communications.

THE PROPER MANAGEMENT OF NATURAL LABOR.*

BY A. D. PRICE, M. D.

The physician being engaged to take charge of a parturient woman he may naturally ask what is the extent of his duty? Where does it begin? With the first stage of labor only? When does it end? With the completion of the third stage? The title which I have chosen for the present paper is in my mind so comprehensive that it can be fairly made to cover the entire period embraced between conception and the conclusion of the lying-in state, and it is in this very broad sense that I desire to present the subject.

For pregnancy, as well as paturition, is a physiological condition. Both require the care and supervision of the attendant, that the progress of the one may be unimpeded and the dangers

*Read before the Central Kentucky Medical Association January, 1881.

of the other avoided, whereby the mother's heart may be gladdened by the cries of the new-born.

The physician's first duty is to ascertain beyond peradventure the existence of pregnancy. Cases of spurious pregnancy are not of infrequent occurrence. Some years ago we were called to a woman supposed to be in labor. She had had morning-sickness and a capricious appetite; menstruation had ceased; the abdomen was enlarged to that of the full period of utero-gestation; the movements of the child, she said, had been distinctly felt. She had borne several children, and knew what such symptoms meant. Every thing was in readiness, the advent of the child anxiously awaited, but a digital examination quickly destroyed these fond hopes and joyful anticipations.

Not a great while since a medical man, who subsequently became eminent for his attainments, attended a case of pseudocyesis for three days before he recognized the true condition. The diagnosis of pregnancy possesses an additional interest at the present day, when abdominal surgery has achieved such success. One of our brethren, whose untimely death cut short a most brilliant surgical record, once mistook a gravid uterus for an ovarian tumor and opened the abdominal cavity for its removal. Equally grave mistakes have been made by others also of acknowledged eminence. To determine the positive existence of pregnancy is absolutely essential. "The woman's history, her surroundings, station in life, age, primiparity or multiparity, general condition, and period of gestation," should next be ascertained. The diameters of the pelvis, its excavation, and various planes are to be determined as accurately as possible. "The normality, position, and integrity of the vagina and uterus" call for careful consideration.

On one occasion being called to a primipara we found the upper part of the vagina completely occluded, presenting a smooth, "blind" extremity, which resisted considerable pressure with the finger. The woman had been in labor for a number of hours; the pains were frequent and severe. Having failed to force the finger through the obstruction we passed the left hand

into the rectum—the patient being under the influence of chloroform—to make further exploration, when pressing with the index finger of the right hand, the adherent walls of the vagina yielded and the impediment was overcome. Labor now progressed normally. Her second labor was accompanied by the same condition, while the third was normal.

"The elasticity of the abdominal muscles, the presence or absence of umbilical, inguinal, or femoral hernia; the shape and size of the breast and nipples; and the presence of enlarged or varicose veins," are to be carefully noted. "The heart, spleen, liver," and especially the kidneys, demand careful investigation.

The normality of impregnation should be determined. An important and perplexing case came under our observation a few months since, where pregnancy existed with an extra-uterine fetation of long standing. Abortion occurred at the fifth month. An operation was afterward performed for the remaining trouble, but resulted fatally at the end of four weeks from the rupture into the peritoneal cavity of an old pelvic abscess.

The fetal head, its bones, sutures, fontanelles, diameters, and compressibility, and fetus in utero should also be studied.

Pregnancy is not a disease, yet its effects are varied and widely different. One pregnant woman will experience but little or no suffering, while another will endure the tortures and dangers of a nine-months' illness; one will improve in general health and increase in weight, while another will lose both strength and flesh and break down generally. The one or the other of these conditions will usually predominate in proportion to the physical development of the individual.

While the functional disturbances of pregnancy are many, we will invite attention to but one, namely, derangement of the digestive system. This of course varies greatly in kind and degree. At one time it is so slight as to produce scarcely any disturbance; and again so serious as to jeopard life, and make artificial abortion necessary. The nausea and vomiting of pregnancy are most frequent during the early months, recurring occasionally in the latter part of gestation when they are generally

associated with kidney-trouble. "The vomiting of pregnancy is a reflex symptomatic act," but its proximate cause remains unascertained. "Sympathy," morbid irritation of the uterus, distension of its fibers, irritation, inflammation and ulceration of the cervix, uterine displacement and flexions, pelvic irritations caused by the contents of the uterus pressing on some morbidly sensitive spot in that organ, and finally hystero-neurosis augmented in aggravated cases by gastric catarrh—have all been booked in explanation of this always annoying and sometimes dangerous act.

In mild cases a gentle aperient and a little nourishment before rising in the morning will, in conjunction with bismuth, oxalate of cerium, or small and repeated doses of ipecac. be sufficient to give relief. In severer cases injections of chloral and bromide of potash will be necessary; these failing, the application of astringents or caustics to the cervix, or the dilatation of the cervical canal, will be demanded. By the latter method we recently secured prompt relief after other means had failed. It will occasionally become necessary to allow the stomach entire rest, the patient being sustained by nutritive enemas. Artificial abortion remains as a last resort to be produced when the life of the woman can be saved in no other way.

An important duty in the management of pregnancy is the chemical and microscopical study of the urine, whereby indications of treatment are obtained not otherwise to be had. The albuminuria of gestation and "puerperal eclampsia and the various forms of nervous trouble," bear no fixed relation to each other. We find pregnant women in every class and condition of life who are the subjects of albuminuria. Albuminous urine is most frequent in the primipara, developing generally in the latter months of pregnancy. It has been said to be always present in cases of twins. Albuminuria may make its first appearance during labor, "owing to obstructed venous flow from compression by the contractions of abdominal muscles and diaphragm during the pains." Some claim it to be quite frequent during labor, rare before. The exact percentage of preg-

nant women in whom albuminous urine occurs has not been determined. Some estimates place it at four per cent, others much higher. It is at least a frequent complication of pregnancy, and is always "a signal of danger when associated with other symptoms of acute parenchymatous nephritis. The quantity and quality of urine passed should be examined daily, the latter showing the presence of a threatened danger, the former revealing the true extent of the danger." Fortunately a very large number of cases of albuminuria escape convulsions. "The quantity of the albumen bears no relation to the violence of the eclampsia." Pregnancy may be associated with chronic albuminuria. The nephritis generally subsides with more or less rapidity after parturition. If it has been severe, or long continued, or has recurred with successive pregnancies, the chronic form is apt to be established. "The kidney-change is dependent upon an excessive amount of blood being thrown into its structure, more than its efferent vessels can carry off pending the elimination of the urine;" hence "the special proclivity of pregnant women to constant hyperemia of the kidney, which at any moment from interrupted circulation may burst forth as a parenchymatous nephritis."

"The impoverished condition of the blood during pregnancy is an important factor, the nutrition of the kidneys feeling this the more on account of its slow, diminished flow."

The proper management of this important class of cases is of the first importance. By prophylaxis much may be accomplished. Rest, the avoidance of excitement, uniform temperature, diaphoresis and diuresis, hydragogue cathartics, dry cupping, occasional blood-letting in suitable cases, milk diet, and the administration of iron will often carry the woman through this dangerous period. Cases, however, occasionally arise where the induction of premature labor will be demanded in order to save the mother's life. How shall the necessity for this extreme measure be determined? By the amount and character of the urine itself. Whenever the amount of urine falls far below the normal quantity, and grows less and less in spite of appropriate

treatment, the induction of premature labor becomes imperative, the more especially if the child be viable.

The pregnant woman should continue her usual habits; observe the utmost cleanliness; go warmly clad; take regular exercise in the open air; eat wholesome food; secure a good condition of the bowels by proper articles of diet, or by the mildest laxatives; surround herself as far as may be by cheerful society; encourage herself to dwell on the bright side only of the picture, and thus keep down that melancholy which so inclines to rise in the minds of persons in her condition.

The mammæ claim special attention—the nipples if small should be developed if possible and hardened.

The impression is general, both among the profession and laity, that the labors of primiparous women who are old are attended with certain peculiarities and especial dangers. Ahlfeld's deductions, which coincide with those of Cohnstein, are as follows: "1. The labors of old primiparæ are on the whole more unfavorable than those of younger primiparæ. 2. The deficient labor-pains induce a longer duration of the labor, prostration, and nervous excitement, hemorrhages post partum, puerperal diseases. 3. The rigidity of the soft parts, causing slow dilatation of the os, unusually painful contractions, protracted duration of the labor, lacerations and contusions of the parts, hemorrhage from wounds, puerperal diseases, are the two principal reasons for the various anomalies. 4. Operations (particularly forceps) are more commonly required. 5. The children of old primiparæ suffer particularly from the long duration of the labor and the necessary operations. (Of 13.5 viable children in general, only one is stillborn; in old primiparæ the proportion is one 3.1.)"

The obstetrician's attention should in every case of labor be directed to the prevention of puerperal fever, which is not itself an entity, but a surgical fever due to the absorption of poisonous matter coming in contact with bruised, lacerated, or torn tissues. The placental site, a lacerated cervix, a bruised vagina, and a ruptured fourchette or torn perineum render the puerperal woman

peculiarly liable to noxious and poisonous influences. The accoucheur himself should never become the source of infection. While in attendance on cases of puerperal fever, erysipelas, scarlatina, diphtheria, etc. he should decline all obstetrical practice. Believing that puerperal fever is preventable, we hold it to be an incontrovertible proposition that it is incumbent upon the medical attendant to show cause for its existence in any given case. Death from puerperal fever ought, with proper care and attention, to be of the rarest occurrence.

Every pregnant woman should be thoroughly examined before labor sets in, or if, as is too frequently the case, the accoucheur is not called till labor has begun, the examination should be immediately instituted. The position of the child is thus determined, and if faulty, and the labor has not progressed too far, can be corrected, or at least changed to one more favorable. The value of abdominal palpation and external manipulation, as aids to internal manipulation in ascertaining and changing the fetal position, have not that recognition they so justly deserve.

Of the three stages of labor, each has certain demands of its own. During this most trying hour the medical attendant should urge hopefulness and tranquility of mind on the part of the sufferer. The fetal position having been accurately determined, and, when faulty, corrected, if possible, the subsequent examinations should be made only sufficiently often to note the progress of the labor. In the beginning of labor the bladder and rectum should be emptied, and the former kept empty. Too much care can not be exercised in matters of such importance. Our knowledge here must be positive. This the first stage of labor may be much protracted with but slight danger to either mother or child, provided the membranes remain intact; and the woman may sit up or walk about the room, provided the head of the child has entered the pelvis; otherwise she should keep her bed. A rigid os, retarding labor, will often claim attention. This obstacle may usually be quickly overcome by external pressure, digital dilatation, or by Barnes's dilators.

Chloral, morphia, or the inhalation of chloroform, or the injection of atropia into the cervix will quickly overcome this obstacle. When the labor is slow, while the os is thick, soft, and uninfluenced by the pains; when there is nervous excitement which is exhausting the patient, and the uterine contractions are irregular, unduly painful, and ineffectual, or there is a tonic contraction of the lower segment of the uterus around the neck of the child after the escape of the head, the hypodermic injection either of morphia or atropia, or a combination of the two, will often produce the happiest results. The uterine axis should correspond with that of the pelvic brim. Lateral deviations are common, and anteflexions to an extreme degree are sometimes observed in multiparæ with relaxed abdominal walls.

Mrs. D., weighing two hundred and sixty-five pounds, and in charge of an ignorant midwife, had been in labor twenty-four hours when we saw her. She had a knee each upon a chair, and was resting her head and shoulders upon the edge of the bed. Placing her in bed and on her back, the fundus of the uterus lay upon her thighs. The womb was replaced and held in position while the forceps were applied, and the woman delivered of an asphyxiated child weighing fourteen and a half pounds.

The rupture of the membranes, if not spontaneous, should be artificially produced when the os is well and thoroughly dilated. When the liquor amnii is in large quantity and the pains are feeble, making but little or no impression upon the os, rupture should not be delayed.

The integrity of the cervix always claims special consideration. Its laceration should be prevented by its being rendered soft and yielding, if necessary, by the means already alluded to.

If the pains in the second stage become feeble, or irregular, or non-expulsive, or cease altogether, external pressure properly and judiciously applied will often be found effective and safe in hastening delivery. How long should the second stage of labor be allowed to continue? While this is a question of the greatest importance, a definite answer can not be given. It can only be

determined at the bedside and based upon the special indications of each individual case.

The use of ergot at this time is seldom justifiable and often exceedingly dangerous. Here, as a rule, we advocate the use of the forceps—their early use. The woman should not be permitted to be worn out by inefficient pains, her nervous system to become exhausted, the vagina to grow hot and dry, thus endangering at least her soft structures, if not her life and that of the child as well. By too long delay both the mother and child are jeopardized. When "the head ceases to recede after a pain" the use of the forceps becomes imperative. If, after weighing the several indications in a given case, there remains a doubt as to the proper procedure, we advise to cut the "gordian knot" by instrumental delivery. Better use the forceps too early than too late! It can not, however, be too earnestly insisted on that the forceps should never be applied merely because the accoucheur is in a hurry or simply desires to save time.

The management of the perineum is of the greatest importance. Its integrity should be preserved, if possible; and we believe this is possible save in exceptional cases. It should always be examined immediately after delivery, and, if lacerated, closed with silver sutures.

Mismanaged labor has been justly said to be the source of much gynecological practice. Only those who see much of the diseases peculiar to women know how often the perineum is seriously lacerated and what ills follow. Laceration subjects the woman to many dangers. If she escapes septicemia she must sooner or later resort to the gynecologist for the relief of her many troubles. Prevention is every thing. How may this be secured? First, by never giving ergot in this stage of labor; thoroughly empty the rectum; place the woman in the left lateral position when the child is passing through the vulvar orifice; paralyze the abdominal muscles and lessen uterine contractions by the administration of chloroform; press the head, when the vertex is engaged in the orifice, slowly out during an interval of pain; prevent a too speedy expulsion of the child;

draw the head, in manual extraction, slowly through the orifice; prevent the simultaneous expulsion of the shoulders; dilate the perineum between the pains by inserting two or more fingers within the vagina, and making gentle and steady traction; employ Goodell's method, introducing two fingers within the anus and pulling the perineum forward over the advancing head, and pushing the head well up under the pubic arch with the thumb; make lateral incisions when laceration is imminent.

The proper management of the third stage is of paramount importance. After a delay of ten or fifteen minutes the placenta should be expelled by expression, no portion being permitted to remain. By Credé's method and by the administration of ergot, which now should be the rule, the occurrence of post-partum hemorrhage is reduced to a minimum. We make bold to say that no woman should be permitted to die of post-partum hemorrhage, and that in every fatal case it rests upon the medical attendant to show why death was not prevented.

In breech presentations delay the first stage of labor as much as possible. Avoid rupturing the membranes till the os is thoroughly dilated; then, the patient being under the influence of chloroform, the perineum having been dilated as heretofore indicated, and expression being made by an assistant, deliver as rapidly as possible, carrying the body of the child over the pubes on to the abdomen of the mother, and hooking a finger in the child's mouth, thus giving it air, and at the same time assisting delivery by making gentle traction.

In twin-pregnancy the second child should be speedily delivered.

The parturient woman should not be denied the use of some agent to lessen or subdue her sufferings in this her hour of trial. Formerly we gave chloroform whenever the urgency of the case demanded it; now we use it only toward the completion of the second stage, relying upon chloral during the first part of labor. Chloral is safe and reliable, often rendering the use of chloroform unnecessary. It facilitates dilatation of the os, allays irritability, subdues sensibility, promotes uterine contraction, and

thus hastens delivery. Its beneficial action frequently continues for several hours after the completion of labor, promoting quiet and securing sleep.

After delivery make the patient comfortable by putting under and around her dry cloths, and letting her rest for a time, after which sponge and dress her, apply the binder, and give an opiate if necessary. If there is hemorrhage and the womb is well contracted, introduce a speculum and search for a wounded blood-vessel. The patient should not be raised up for several hours, nor worried by having the child put to the breast too soon. She should not be left under an hour, her womb being frequently examined to see that it remains firmly contracted. The bladder demands attention, the catheter often being necessary. Ergot should be administered for a few days, to secure and maintain permanent contraction of the womb and to hasten involution. Ten-grain doses of quinine for the same purpose, and for lessening milk-fever and the susceptibility to septicemia, should be given night and morning for two or three days. A liberal amount of nourishing food should be allowed, the vagina syringed daily till the lochia becomes naturally diminished, and the patient kept in bed or on a couch for two or three weeks. The lying-in woman should be visited often, and her pelvic organs thoroughly examined before being discharged. If a pathological condition exists it should be remedied. Recent advances in obstetric medicine and gynecology have remedied many ills of the parturient woman that heretofore passed unnoticed and rendered life a burden.

The obstetrician's duty is great, ever increasing with the progress of his specialty, and the day has already dawned when his responsibilities cease only with the complete restoration of the lying-in woman.

HARRODSBURG, KY.

THREE CASES OF EYE-DISEASE.*

BY W. CHEATHAM, M.D.

Instead of reading a paper on the subject assigned me in the regular programme of the Society, I beg to report a few cases of diseases of the eye which have come under my treatment in the last two or three years.

Mr. H., of Spencer County, Ky., who was one of the best-known blind men in this State, consulted me some months ago in reference to his infirmity. He lost one eye by a blow from a flying chip; the other was destroyed by a blow from the heel of a companion. He was deaf from the kick of a mule. His misfortunes influenced me in my prognosis. I told him I feared what sight I might be able to give him would not be likely to keep very long, as he is extremely rash in his movements, and continually getting knocks about the head. Being blind in one eye, with very imperfect vision in the other, and deaf to all external noises, he is of course particularly liable to collisions. In Mr. H.'s left eye the sight is nothing. He has weak perception of light in the right. Examination showed all of the cornea, except a small oval space one fifth of an inch long by one eighth of an inch broad on the nasal side, opaque. Behind this clear or rather partially clear cornea was stretched a membrane composed of organized lymph and degenerated iris. I supposed the lens was absent. Such had been the condition of things for thirty-seven years; that is, Mr. H. had not seen an object in all that time. He had during that period some perception of light. He had consulted oculists in Boston and elsewhere, but was told that nothing could be done. I myself was unable to offer him any encouragement, but naturally thought that if the operation which suggested itself to me was unsuccessful there would at least be no harm done. The patient being chloroformed, I introduced the speculum, fixed the eye with forceps, and plunged a Graefe cataract-knife through the cornea and membrane into the vitreus chamber. By a slight

* Read before the Tri-States Society at its meeting in 1880.

seesaw motion I enlarged the wound, when the vitreus, being in a fluid state, began to flow out. This of course complicated matters very much. I attempted to remove part of the membrane by introducing both blades of De Wecker's scissors into the corneal wound, passing one blade under the membrane into the vitreus chamber and the other into the anterior chamber above the membrane. In this manner I made a cut through the membrane the length of the clear cornea. Withdrawing the scissors, I made a similar cut on the other side of the membrane, sloping both cuts so as to almost meet at the apex of the oval-shaped clear cornea. When the second cut was made the triangular-shaped piece of membrane floated back into the vitreus chamber. Just after making the second cut, the lens (thoroughly calcified), being of stony hardness, presented itself. After several attempts with spoon and forceps it was finally removed. When the operation was concluded the eye looked very much shrunken, as a greater part of the vitreus had escaped. The bandage was applied, but had to be removed the following day owing to the pain, which was considerable. Cold cloths were substituted and atropia dropped in the eye. There was not even a perception of light for several weeks. The sight finally commenced to return, and week by week since has gradually improved, and today Mr. H. can read good large print and can go about alone. No doubt the retina or choroid are involved to some extent, as distinct vision exists in but a very small field. To get a good view of objects, it is necessary for him to look intently and to move both head and object till the image of the object falls upon the sound portion of the fundus. This impairment of the perceptive layers can not, of course, be corrected by an operation. Were the perceptive power of the eye all right, he has a pupil good enough to see almost perfectly. The small space in which to operate, the small field of clear cornea, the fluid vitreus, the calcareous lens, not to speak of the length of time of the existing blindness (thirty-seven years), make such a result rather odd and interesting. Mr. H. has difficulty in crossing crowded thoroughfares on account of his deafness. Any

one, even with perfect sight, if totally deaf, would experience some difficulty and dread in making a similar attempt.

Another case of great interest to me was in the person of an old lady of ninety-two years with cataract of ten years' standing. I placed her under the influence of ether, and extracted the opaque lens by Graefe's linear method. The incision was perfect; iridectomy a little large; lens escaped nicely; compress applied, which was not disturbed for two days; at the end of that time compress was removed, eye cleansed, and bandage reapplied for another day. The shade was then substituted and a solution of atropia sulphate dropped into the eye three times a day. The incision was healed the third day. In reference to the healing of an incision, I am never in a hurry. The aqueous humor flowing off prevents increase of tension. I have seen the incision remain open for two or three weeks with good results. Where it remains open too long, the edges may be touched up with either nitrate of silver or sulphate of copper. This case went on to rapid recovery. The old lady now has sight enough to enable her to sew, read, or knit as well as she ever could.

A third case of peculiar interest was a boy twenty-one years old who was born blind. Four operations restored vision to such perfection as to enable him to make a comfortable living for himself and mother.

Case first is remarkable on account of the many years of blindness and the nature of the malady, case second because of the age of the patient, case third because of the congenital blindness of twenty-one years' standing.

LOUISVILLE, KY.

ON THE TREATMENT OF PNEUMONIA.*

BY E. W. KING, M.D.

I hope I shall be pardoned for presenting the following thoughts upon the plan of treating pneumonia into which I have gradually drifted, and advancing certain views which may be thought by some to be not entirely orthodox. Practitioners of the present have long since realized, what our forefathers did not, that pneumonia is a self-limited disease, and that our duty is not so much the combating of the leading symptoms by active and heroic treatment as it is to avert the tendency to death. As has been well said by Jürgensen, "Nature cures, and the only duty of the physician is to maintain life until this cure is effected." The writings and teachings of Flint have had much to do in popularizing and impressing this truth upon the minds of the profession in this country; but as public sentiment is prone to oscillate to the opposite extreme from that which it recently occupied, so has been the thought of the medical profession to go to the opposite of the antiphlogistic regimen, and perhaps too much confidence has been reposed in the powers of nature.

Recognizing pneumonia as a self-limited disease, its pathology a croupous inflammation of the air-cells, with an exudation into the air-vesicles and bronchi forming coagulable fibrinous clots, and that death results, in the majority of fatal cases, as a result of the hyperpyrexia, or from exhaustion and paralysis of the lungs or heart or both, the indications for the management and treatment during the attack are quite clear, viz. to support the powers of life, to combat the hyperpyrexia, and to sustain the action of the respiratory and circulatory systems. The supporting method of treatment in all self-limited diseases is now so generally accepted that we shall not further allude to it. When the accompanying fever runs high, as measured by the thermometer, and threatens dissolution from hyperpyrexia, the cold pack, as advised by Niemeyer and practiced at Bellevue this winter, or

* Read before the Mitchell District Medical Society at Seymour, Ind., Dec. 22, 1880.

the cold bath of Jürgensen, are certainly advisable if the same results can not be obtained by full doses of quinine.

Jürgensen, in Ziemssen's Cyclopedia, claims that "death results from insufficiency of the heart." While this is undoubtedly true in many instances, yet from my limited observation I am led to believe that the greatest danger in uncomplicated croupous pneumonia is in the exhaustion and paralysis of the bronchial tubes in the portions of the lung that are not invaded by the inflammatory action, and that death results more often from paralysis of the lungs from exhaustion than from paralysis of the heart from exhaustion or overwork. In croupous pneumonia the gravity of the case is in proportion to the extent, *cæteris paribus*, of the lung inflamed; not so much from the diffused inflammation as from the inability of the remaining uninflamed lung doing the work for several days that is normally done by the whole respiratory apparatus; and for indications of its failure we look with anxious dread, feeling assured that if we can keep its action free and unembarrassed the disease will soon run its course and recovery ensue. The earliest warnings of this failure are announced to us by the appearance in the healthy lung of râles that partake more of the nature of the sibilant, sonorous, or most usually mucous râles, than of the crepitant or subcrepitant, and indicate a weakness and inability, on the part of the bronchial mucous membrane of that lung, to throw off the accumulated secretion, which prevents the permeation of the air-cells by oxygen for the purification of the blood. To meet this tendency to death, to keep the bronchial tubes free and able to do their work as well as possible under the circumstances, there seems to me that no medicine is more clearly indicated than a stimulating expectorant; and none fulfills that indication better than carbonate of ammonia. Its power to moisten the bronchial mucous membranes and its stimulating qualities have long been recognized, but its applicability to aid the lungs when overworked, as in pneumonia, has not been appreciated as I am convinced it deserves to be. It is in the second stage of the disease that its power is exerted most ben-

eficially, when the inflamed lung is in the stage of red hepatization, when the uninflamed lung is on the verge of exhaustion from prolonged overwork, and the aeration of blood being very imperfectly accomplished, then by keeping the fatigued lung stimulated by stimulating expectorants to a normal action we may be able to tide over the crisis successfully, and the consolidated lung terminate in resolution.

It is very probable that much of the advantage to be derived from the administration of carbonate of ammonia, in addition to its stimulating effect, is due to its action in hyperinosis. As Niemeyer has claimed, and which is being generally accepted by the profession as true, the air-vesicles and bronchi are filled with coagulated fibrin, and some claim that the prodromic symptoms which often precede for one or two days the local manifestations should be attributed to the accumulation of fibrin in the blood. Others contend that it is not primary but secondary, and is caused and augmented by the local inflammation, and is at its height when the inflammation is the highest. Whichever is true, it is an admitted fact that in pneumonia we have a condition of hyperinosis and a local exudation of fibrin in the air-vesicles of the inflamed lung where it becomes coagulated indicating quite strongly that excess of fibrin is no insignificant factor in pneumonia.

It is also an admitted fact that no medicines have greater power in liquefying the blood, depriving it of its fibrin more rapidly or promptly, than alkalies; and I think no alkali is better adapted to that duty in croupous pneumonia than the ammonia carbonate, combining, as it does, this with its properties as a stimulating expectorant, making it peculiarly applicable.

Its utility then, from this argument, is in the second stage—the stage of red hepatization—and especially when approaching the stage of resolution, when we wish to deprive the blood and air-cells of their excess of fibrin, to stimulate the remaining sound lung up to a point of doing its work, and maintain as perfect oxygenation of the blood as possible, until resolution has become well established and the crisis passed. With this view I

have given it in about sixty cases of pneumonia in the last few years, and now have the gratification of looking back over my notes and finding that not one of those cases under sixty years of age died, and that several who were above that age made good recoveries.

A very common objection to this remedy on the part of the profession is its acrid, pungent, and penetrating smell and taste. This can be obviated and its administration made pleasant by dissolving it in simple syrup, or, as I prefer, in syrup tolu. My usual prescription is—

℞ Carbonate ammonia, ... ʒj;
Syrup tolu, ... ℥iss.

M. S. Teaspoonful every half hour or hour, in simple syrup, whisky, or water, as the case demands or patient prefers.

I do not limit myself to the dose of five grains, but have in several cases given it in ten- to fifteen-grain doses every half hour for days and nights in succession where there was threatened exhaustion of the uninflamed lung and the case demanded active and continued stimulation to tide over the crisis of resolution. In several cases which presented indications of heart-failure I have deemed it advisable to combine the general stimulant alcohol with ammonia, and the combination makes a very pleasant mixture and reliable stimulant.

Another objection is that ammonia in large doses is an irritant poison; but I assure you if given largely diluted with syrup it is not an irritant to the stomach, and will seldom be considered objectionable to the most fastidious taste.

In cases in which the prognosis is favorable from the very first, and in which I am satisfied active medication will not be necessary, but where we must do something, even if it is a placebo that is prescribed, I usually give this remedy, knowing that its physiological effects are to the contrary of the pathological condition; and by so doing I am intelligently aiding nature to recover her lost equilibrium, and if prompt action should become necessary I will have accomplished something in the right direction, and be better enabled to accomplish more.

If my theory is correct that the greater tendency to death in pneumonia is from exhaustion and paralysis of the lung that is not inflamed, I shall most assuredly be justified when I decry the use of opium in any and every form in the second stage of pneumonia. I am well aware that by some of our most prominent teachers and authors opium is considered the sheet-anchor, but I am satisfied in my limited experience that it has never done me well, and where I have been induced to give it because of pain or wakefulness I have had good reason to regret my action. In a few instances, in old persons, where the termination was very doubtful, and I have given it to relieve pain, along with its physiological effects evidences of failure of the sound lung were manifested, and the patients sank and died. We all know that one of the earliest effects of opium is upon the lungs, producing a slowness of respiration and obtunding the sensibility of the bronchial mucous membranes. Therefore I should unhesitatingly say that it should not be administered in the second stage, and especially near its close, for fear of inducing a paralysis or impairing the powers of the lung that must carry on respiration until resolution has taken place.

Since writing the above I have had an opportunity to consult Bartholow's work on The Practice of Medicine, and I find that he strongly recommends the use of ammonia in pneumonia, and prefers the carbonate for its power to lessen the viscidity and coagulation of the fibrinous clots in the air-cells and bronchioles; but from the remark that the "ammonia solution should be continued up to the crisis," implies that he would limit the time of its administration to the early part of the second stage or during the time the exudation of the fibrin is the most active.

It is, however, during the latter part of the second stage, at the approach of and during the crisis, that I have been most gratified with the vigorous administration of ammonia, and especially in adynamic cases; and theoretically, as well as from experience, I still believe I am justified in my conclusions. If the alkali possesses the power to soften or liquefy the fibrinous

exudate in the stage when it is being deposited, most assuredly will it have a favorable influence during the stage when nature is exerting herself to accomplish the same object, and especially in cases in which the vitality is so low that some assistance is demanded.

Bartholow's method of administering it is in a solution of liq. ammonia acetatis given every three or four hours. This mixture I do not think is as palatable as that made with syrup; and when we consider the volatile nature of ammonia it is reasonable that its administration should be oftener than once in every three or four hours if we desire to maintain its continued effect on the hyperinosis and fibrinous exudate, and derive any benefit from its properties as a stimulating expectorant.

NEW ALBANY, IND.

USE OF FORCEPS IN OBSTETRICAL PRACTICE.*

BY S. V. FIROR, M.D.

The title of this paper I wish to use in a limited and not in a comprehensive sense; that is, it is not my purpose that it should embrace forceps-delivery made necessary by a contracted pelvis or the occurrence of such complications as are universally-admitted causes demanding the use of forceps, viz. hemorrhage, convulsions, tumors, exhaustion, rupture of the uterus, etc.; but I shall confine myself to a simple plea for an *earlier* resort to the forceps in *natural labor;* and I mean by natural labor that which, though severe and lingering, yet affords no reason for believing that it would not finally be able to complete itself. It is in just this class of cases that we often delay too long, to the injury of both mother and child. I need not say here that the teachings of authors generally are unequivocally adverse to operative in-

* Read before the Tri-States Society, 1880.

terference so long as there remains a chance for unassisted delivery. Certain rules are prescribed which I fear are regarded by the young accoucheur as absolute, and thereby lead to the sacrifice of many children and endanger the lives of their mothers. Allow me to briefly name some of the rules alluded to: "The ear of the child must be distinctly felt;" "the head of the child shall have rested for six hours as low as the perineum;" "when nature, exhausted in ineffectual effort, is unable to accomplish delivery." Now while the dicta of such authorities as Merriman and Denman and others as ancient may be excused, it is not a little surprising that in the light of advanced obstetrical teachings there still should be found writers reiterating such very antiquated teachings; and while it is true that the more recent text-books discard such teachings, they still counsel delay, and direct that the physician should wait until nature becomes so far exhausted as to be unable to rally sufficiently to expel the child. While the absurdity of the former will be readily admitted, the pernicious effects of the latter have been doubtless impressed upon the minds of most physicians ere they have spent many years in their profession. I can see no reason why such absolute rules should be laid down, unless it be merely to hold in check the ambitious young accoucheur in his desire to gain eclat by an operation, or to restrain his impatience, or still the clamor of meddlesome old women for something to be done. It may be claimed that the common sense which ought to govern every physician will soon dictate how far he should regard such rules as being positive, and therefore suggest in what they should be qualified; yet this knowledge and independence may not come until more than one life has been sacrificed.

During the last decade of my life I have used the forceps in ten cases (just twice the number in which I applied them during the preceding twenty-four years), and in nine out of the ten cases the children were delivered alive and without detriment to either of the mothers. The exceptional case was the patient of a professional friend in Ohio, where the head of the child had been already impacted in the pelvic cavity for twelve hours, with

evidence of the child's death at the time the forceps were applied. Had the delivery been effected six or eight hours earlier the child in all probability would have been alive. I can distinctly recall two cases occurring some years ago, in which the unassisted efforts of nature, being permitted to terminate the labor, resulted in the birth of still-born children with most perfect physical development and bearing all the evidence of recent viability—cases which I am now firmly persuaded would have been saved by the resort to the forceps several hours before delivery took place. For years past I have no longer been governed by a blind obedience to the canons of written authority, but I now endeavor rather to act upon the dictates of my own judgment as applied to each individual case as it arises in practice.

How then can we determine the proper time for operative interference? We may say, when we can secure the greatest safety to both mother and child. This must be resolved upon by the proper exercise of *common sense* in each individual case. We might here suppose, for example, that when the head is in the pelvic cavity, with pains strong, frequent, and of an expulsive character, for several hours, without causing it to engage in the inferior strait or make any advance, or if the head be impacted, or, again, if the head be engaged in the inferior strait and pressing upon the perineum, with the characteristic labor just named, continuing for several hours without making any advance, I would urge the propriety in either case of terminating the labor by the use of the forceps; and this for two main considerations — first, the safety of the child; second, to end the mother's suffering and save her strength. I offer nothing in extenuation of the bungling use of the instrument, whereby injuries are inflicted on either mother or child. The application, when directed by ordinary skill and a well-balanced judgment, will not be attended with any ill effects, and a delivery as above indicated will bring forth a living child, if so at the time, without having received any serious injury. So fortunate an issue could scarcely be looked for if we would wait several hours longer, when the strength of the mother had become exhausted so as

to render the pains nugatory. So much for the child. Now what of the mother? By the early use of the forceps we save her hours of suffering. And who, save those who endure them, can have the faintest conception of the agony embraced even in one half hour of suffering under strong expulsive pains or even in a single pain? How often do those much-to-be-commiserated creatures importune the accoucheur to afford them relief in some way, being in many cases absolutely indifferent as to the means used! Yet how often are they repulsed with the cold and to them seemingly heartless reply, "We must wait on nature!"

Nature is doubtless the same now as at the creation, both in the human family as well as the inferior animals, and as such most admirably constructed to accomplish her wise design in the act of procreation, as asserted by an eminent author.* It must, however, be admitted that her efficiency becomes at times wonderfully impaired either by sinful abuses of her laws or by many of the accessories of our boasted civilization. Beyond this mere relief of the suffering in the woman, we save her wasting strength, and thus place her in better condition to make a more speedy and thorough recovery, besides saving her from the dangers of such traumatic evils as vesico-vaginal, urethro-vaginal, recto-vaginal fistulas, cellulitis, etc., all of which may result from too long-continued pressure of the head upon the soft parts. Emmet, of New York, in a paper read before the American Gynecological Society in 1878, thus states this point: "Instrumental delivery has rarely, if ever, caused vesico-vaginal fistula, but a direct cause is the delay in delivering an impacted head, etc." I am glad to note the fact that within the past few years not only has this eminent authority but a number of our leading men have expressed their approbation of an earlier resort to the forceps.

There are those who still oppose the procedure on the ground that all obstetrical instruments carry with them the idea of mutilation and death. I think, however, that an accoucheur of ordinary tact can soon disabuse the minds of mothers, under their

* Dr. Bedford, Principles and Practice of Obstetrics, page 569.

dreadful suffering, so that they would readily submit to any operation promising speedy delivery.

Another objection, which I have alluded to incidentally, is, the injuries inflicted by the unskillful use of the instrument. This I consider scarcely valid. The same argument might be used against many other surgical procedures. The importance and necessity being admitted, should it not be regarded as an imperative duty on the part of the teachers in our schools to so instruct their pupils as to make them skillful operators?

I have but to repeat my gratification, viewed in the interest of humanity, at the change of sentiment in regard to this important subject which has taken place in the minds of many of our leading physicians, and to add that if what I have said should have the effect of inducing a still further change and an increased study of it I shall feel that some good has been accomplished.

CATLETTSBURG, KY.

FOREIGN CORRESPONDENCE.

My Dear Yandell: LONDON, February 15, 1881.

The "oldest inhabitant" of London would have to vigorously ransack his brain to find a parallel for the present worse than Arctic winter. I believe in my last letter I alluded somewhat in a querulous strain to the extraordinary mildness of the time, and ventured to suggest that it might be in some degree responsible for the rapid spreading of smallpox. Fearfully has the slighted season avenged itself. Snow, wind, hail, and rain have been in fierce contention for the privilege of overwhelming us, and overwhelmed we certainly are. The 18th of the past month was a day the memory of which will ever remain by no means in benediction. A fierce gale blew apparen ly from every quarter of

the compass at once with an icy sharpness that seemed to cut the very marrow of one's bones, and brought with it a blinding snow-storm that sought out every nook and cranny of one's house, and drifted at times so thickly through the air that the opposite side of the street was completely hidden as by a thick fog. The houses were loaded with snow to such a degree that in the poorer quarters many roofs gave way beneath the weight, causing serious injuries to the inhabitants. The view on the following day from the lines of railway, which in South London run in many parts high above the housetops, was most extraordinary. The houses, like Mr. Mantalini's countess, appeared to have no outline at all. A smooth, white pall was spread in all directions, blotting out the angles of wall and roof with its fleecy covering, while in many places it had drifted so as to completely cover some small cottage, only one wall of which remained visible. Moreover, the empty streets and the broad river, with scarcely a vessel to be seen stirring, produced a very weird effect, which was much increased by the dead silence that reigned every where. The parish authorities having now partially recovered from their panic, are endeavoring to remove the block in the streets, though where the snow is to be put when it is got into carts is a question over which they can wrangle to their hearts' content. The Thames Conservancy Board objects to the river being made a receptacle for it, and the Board of Works has not yet given permission for the parks to be utilized; so at present in the West End the snow is carted into the various squares and there piled up in mountains as high as the lamp-posts. And it is needless to mention the satisfaction with which the inhabitants of the said squares view this proceeding.

Oddly enough, the death-rate has been scarcely affected at all by the extreme cold. The rate of mortality in twenty of the largest English towns was but 23.6 per thousand, while the deaths registered in London showed but a slight increase on the low numbers of recent weeks, and were no fewer than one hundred and sixty-one below the corrected average in the corresponding weeks of the last ten years. Probably the intense

cold has scarcely had time to set its mark on the returns. The next report of the Registrar General will be full of serious interest, as it will undoubtedly afford the means of estimating the fatal effect of the present cold on the national mortality.

A striking feature of the present outburst of winter is the intensity of the frost during the whole period of day and night. For instance, the mean temperature of the twenty-four hours ending at midnight on Saturday the 22d was only 17.6°, while for the four preceding days there was a continuous average of eight degrees of frost. Many startling tales are going about, but nothing more curious have I heard than the following, which I venture to relate, and for the truth of which I can vouch: A firm of merchants in London had occasion to send a check to a house in Glasgow for rather more than a thousand pounds, which check was inclosed in a letter and sent to the post with others. Days elapsed. As no news of it arrived, the letter was given up as lost, when on the seventh day a Thames police constable brought the missing letter and check into the office. It had been accidentally seen as *frozen to a block of ice it was floating down the Thames.* No doubt the clerk who took the letters to the post had dropped the one containing the check out of his hand into the snow without perceiving it. The snow had been carted away and with the letter thrown into the river, whence it had been by the merest chance rescued. Indeed truth is stranger than fiction.

By the way, talking of vital and mortal statistics, Spain has in recent years been one of the few European countries relating to which no satisfactory details have been available. I have seen a monthly return of mortality statistics for November relating to the whole of Spain, which affords conclusive evidence that the value of such information is now fully appreciated by the government. Spain, according to a recent census, has a population of between sixteen and seventeen millions, the population of the forty-nine provinces ranging from ninety-three thousand eight hundred and sixty one in Alava to eight hundred and thirty-eight thousand two hundred and fourteen in Barcelona. The

death-rate is given during the four weeks of November as 2.003 per thousand. This is equivalent to an annual rate of 26.1 per thousand. This rate shows a marked excess upon the average rate during the same period in the twenty large English towns. It is evident, moreover, from the rates prevailing in some of the provinces containing the largest towns that urban mortality in Spain must be excessive. For instance, the November annual death-rate in the province of Madrid was equal to 36.8 per thousand, in Cadiz 34.2, and in Valladolid 34.1. As in most of the southern countries of Europe, the rate of infant mortality in Spain is terribly high. During November alone the mortality of infants under one year of age was equal to two hundred and forty-two per thousand of the recorded births—not far short of twice the rate prevailing in England and Wales. If we may accept these figures as representing an average return, the excess of Spanish mortality is due mainly to the great fatality of zymotic diseases. The returns, on the whole, are most valuable as a contribution to medical statistics, and can scarcely fail to afford invaluable assistance to the cause of sanitary progress in Spain.

As you no doubt know, the question of nerve-stretching in various diseases has lately been brought very prominently forward and strongly advocated. Certainly some of the results are startlingly successful, and the more startling as the rationale of the operation is so far from clear. M. Debove, of Paris, gave an account at a meeting of the Société Medicale des Hopitaux of a case in which the operation had been performed by him for the "lightning" pains of locomotor ataxy. Previously the only drug that gave any relief was morphia. This had been greatly abused, and so great was the tolerance established that the patient felt no benefit when less than three grains were given in the course of the day. The operation was performed first on one sciatic nerve and then on the other, and subsequently on both crural nerves. Three weeks after the operation the patient had not felt one single pain, while the incoördination was greatly improved.

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Encouraged by this success, M. Gillette operated on December 16th on a patient of M. Debove. In this case there were, in addition to the more ordinary symptoms, incessant pains in both upper limbs, which underwent exacerbations. The median and radial nerves on the right side were stretched. Since the operation the pain in the right upper limb has much diminished, while in the left upper limb and in both lower extremities it has entirely ceased. The plantar anesthesia has very much diminished, the incoördination of movement is much less marked, and he can now walk without assistance. He refuses to take morphia, saying that "his present pains are as nothing compared with those which he formerly endured."

The method of operating used by M. Gillette is simple. He reaches the nerve by an incision two and a half inches long; passes a grooved director, with the convexity upward, under it; and, grasping the two ends of the director, makes traction in a line perpendicular to the axis of the nerve with force sufficient to lift it about two inches. No fear of rupturing the nerve need be entertained, as it has been found that the radial nerve—to take an instance—will not give way until a force of over ninety-two pounds is applied. It is difficult to understand the rationale of this operation; still, as the result in four out of five cases has been so successful, no further justification for its empirical performance can be needed. That in all the cases the operation has been immediately followed by relief of symptoms, and that in this case improvement in walking and diminution in plantar anesthesia followed stretching of the nerves of the upper extremity, would seem to show that the resulting improvement can not depend upon any structural changes. At present there does not appear to be any guide to the choice of suitable cases, unless, indeed, the fact that all the patients operated on have suffered severely from lightning-pains can be taken as an indication. Time, however, will no doubt clear up this and many other difficulties connected with the subject, and we may not improbably learn that we have included under the one term several correlated but distinct morbid processes.

I have myself lately witnessed the performance of the operation of nerve-stretching. About a week before Christmas a railway signal-man was brought to St. Mary's Hospital with an injury to the hand. He had been knocked down by an engine, which had caught his hand on the rails and had torn off his thumb, index and middle fingers. The wound was slanting across the hand, and took a line through the metacarpal bones. An attempt was made to save the whole hand, and all splinters having been removed and the edges of skin brought together the whole hand and arm were fixed at rest on a splint. Scarcely any inflammatory action followed, and the wounds appeared to be granulating very kindly, when about a fortnight after the accident the patient caught a cold. Symptoms of tetanus began to manifest themselves, and when I saw him were quite unmistakable. The peculiar risus sardonicus was pronounced and constant, while the violent aching in back and abdomen caused great distress. The abdominal recti were firmly contracted and as hard as wood. A consultation was held, when all the surgeons were in favor of either stretching or excising a portion of the median and radial nerves, except one who advised amputation above the wrist—a strange counsel, since, as every one knows, the records of amputation in tetanus are far from encouraging. Nerve-stretching was decided on, and Mr. Pepper, the surgeon in attendance on the case, at once proceeded to operate with his usual consummate skill. The median and radial nerves were successively cut down upon and rapidly exposed. A director being passed below each nerve, it was lifted up and vigorously stretched with two pairs of forceps. The trifling simple incised wounds were then secured with silver sutures and carefully covered. The whole operation was performed with the strictest Listerian antiseptic precautions. (I may say, in parenthesis, that during this time no change was apparent in the original wound beyond slightly-increased suppuration.) For two days after the operation the patient seemed somewhat relieved. He had prolonged sleep on several occasions, though this may have been due to the perfect freedom from any noise

procured for him; but on the third day the spasms returned with great vigor and the patient gradually sank. Chloral and bromide of potassium had been tried in large doses throughout, and later extract of Calabar bean was given subcutaneously. The latter remedy appeared at one time to have a decided effect in checking the spasms. Permission for a post-mortem examination was absolutely refused, but the surgeon was allowed to extract the spinal cord, and we shall look for some interesting details of its microscopical examination.

This is one of the very few occasions when nerve-stretching has been performed for the relief of tetanus, and its failure in this particular instance must not lead to its hasty condemnation as a mode of treatment. The rationale of the operation in the case of tetanus is not much more clear than in that of locomotor ataxy. Of course the great object is, while sustaining the patient's strength, to cut off any peripheral irritation by the wound; and if this is attained by nerve-stretching, well and good. But it is by no means clear that the simple stretching of a nerve is an absolute bar to its conveyance of sensation, which could only be secured by the excision of part of the nerve. The whole subject is involved in mystery, and pure and simple speculation is not likely to do much to elucidate it.

Much honor has been reflected on the profession by the conferring of an "Albert" medal of the first class upon surgeon Henry Grier, M.D., at present stationed at Malta. Lieut. Graham, of the Tenth Regiment, was attacked with diphtheria of a very virulent type, and, as a last resource, tracheotomy was performed on him by Dr. Grier. In the course of the operation, respiration not becoming restored, Dr. Grier applied his lips to the wound and sucked out the obstructing membrane. The extension of the disease ultimately caused a fatal issue. The patient rallied after this and lived for several days, though the medal conferred on Dr. Grier is only a just reward for his devoted zeal.

Frank Buckland, whose lamented death I recorded in my last letter, has been succeeded in his post of Inspector of Fisheries

by Professor Huxley. The post is worth £800 a year, and, it may be added, the duties are not so excessive as to compel the learned professor to resign his other office of Naturalist to the Geological Survey, also worth £800 a year.

The several committees of the International Medical Congress are busily engaged preparing for the meeting here in August. It is understood that great numbers of medical magnates from our own and other countries will not only lend their presence to the occasion, but contribute papers as well. All of us here hope "the States" will show up strong at the meeting. Of course we expect you.

I must ask you, my dear Yandell, to excuse a longer letter this time. I have been suddenly summoned to the south of France, and have much to do before my departure. I hope to be back in time for my next letter and to bring back some notes which may prove of interest to your readers.

Reviews.

How to Use the Forceps: with an Introductory Account of the Female Pelvis and of the Mechanism of Delivery. By HENRY G. LANDIS, A.M., M.D., Professor of Obstetrics and of Diseases of Women and Children in Starling Medical College. New York: E. B. Treat, Publisher, 757 Broadway.

This modest duodecimo of one hundred and sixty-eight pages, dedicated to Dr. Ellwood Wilson, is the expansion of an article published in the American Journal of the Medical Sciences, April, 1876. It is divided into two parts—the first, *the mechanism of labor;* and second, *the forceps.*

In the first part Dr. Landis's widest divergence from the teaching of obstetric authorities is as to the plane of the superior strait; for it is not, according to our author, one surface, but two—"the outline of the inlet is compounded of two partially superimposed ellipses similar to the outline of the fetal head."* Thus there are two obstetric canals commencing at the pelvic inlet, which merge into a single one at the pelvic outlet. Dr. L.'s ingenious theory and careful reasoning in this regard can not be fully appreciated without the accompanying diagrams and without careful study.

In presenting the mechanism of delivery, or, as we would prefer saying, the mechanism of labor, Dr. L. has introduced a good deal of purely elementary knowledge, but seems necessary in order to present the author's peculiar views. In the course of this presentation Nagle's *obliquity* is upheld. Undoubtedly the anterior parietal protuberance seems lower than the posterior, but does it not merely *seem* so because more readily accessible to the examining finger—the fact apparent rather than real?

* But what is the outline of the fetal head? If one of the planes of the fetal head, how can *two* ellipses resemble it? There seems to us some obscurity in the definition.

On page 56 Dr. Landis refers to restitution—a designation which we supposed most obstetricians had abandoned. If such an intra-pelvic torsion of the neck occurs as restitution requires to have taken place, then this restitution should immediately follow the delivery of the head; but it does not. It does occur, however, when uterine contractions compel the shoulders into the antero-posterior diameter of the outlet. The external rotation is needless in itself, and is only the sign of a necessary internal rotation.

The author states, pp. 58, 59, "The delivery of the head is frequently followed by a more or less temporary cessation of uterine contractions. Under such circumstances the child may be in danger of asphyxia from pressure upon the funis, if the body is large or the funis wrapped around the neck, so that an immediate delivery of the shoulders by the physician is to be recommended." We would rather say that usually, almost invariably, there is a cessation of uterine contractions after the delivery of the head; but then contractions generally return within two or three minutes, so that it is very rarely necessary to resort to artificial delivery of the shoulders. And when these contractions fail would it not be better to stimulate the uterus by abdominal friction, or resort to *expression*, using a *vis a tergo* rather than a *vis a fronte?*

But we must pass from the first to the second part of this volume. The first pages of this part are devoted to a description of the forceps, especially of that known as Davis's. Of this particular instrument Dr. Landis seems almost enthusiastic in his admiration, and we heartily share in that admiration. Dr. L., by the way, will put a fenestrum in the forceps-blade, but unfortunately fenestrum, whatever it may be, is neither Latin nor English.

In considering the application of the forceps, our author strongly advocates applying them to the sides of the fetal head, not with reference to the sides of the pelvis. But if his favorite were some other instrument than that of Davis—Simpson's or Elliott's, for example—would this advocacy be so strong? The

"Davis" is for the sides of the fetal head, and, we almost add, should never be otherwise used. In reading Dr. Landis's excellent rules for the mode of applying the forceps, we find these words as to the blade: "It is to be passed almost exactly as we would pass a male catheter into the male bladder." How unconsciously almost the very direction of one of the old masters is reproduced! Levret, writing more than a century ago, described the introduction of the forceps-blade as par le moyen d'un mouvement assez semblable à celui q'on fait quand on sonde les hommes par-dessur le ventre.

As to the direction and method of traction we give the following quotation:

> Among the first to have a practicable doubt as to the possibility of making traction upon the handles in the proper direction was Tarnier, who accordingly invented a pair of forceps with a considerable pelvic curve, which was fitted with steel rods affixed to the lower edge of the blades, so that we could pull in the line of the blades and not in that of the handles. This is an unnecessarily ingenious contrivance, since we possess in the ordinary forceps all that is necessary if we will use them properly.
>
> The method which seems to me the correct one I will now attempt to describe. When the forceps are applied at the inlet the handles are seized by the right hand from above and held firmly, compressing the head as little as possible at first. The left hand is placed so that the ball of the thumb comes over the lock, while the index-finger rests upon the upper arm of one blade and the middle finger upon the arm of the other. Now while the right handle holds the head almost at rest, the fingers of the left *push* upon the blades so as to move them and the contained head downward, backward, and a little to the left of the median line. Secondly, while the fingers are pushing down in this way we may also make use of them as a fulcrum, and by elevating the handles cause the blades to move in an opposite manner; but care must be taken that the force thus applied is not enough to overcome the downward pressure of the left, else we will merely extend the head without propelling it.*

These directions doubtless are excellent, are worthy of remembrance and application. But did not Nagle, and before him

* No *vis a fronte* propels.

Deiander, recommend methods somewhat similar for the same purpose? Nevertheless Dr. L.'s is simpler and more readily applied, and, if equally efficient, therefore better. As to the first statement in the extract, viz. in reference to the priority of Tarnier, the perineal curve which Johnson gave his forceps, 1769, sought to bring the line of traction in the axis of the canal. Hubert's forceps, 1860, were seventeen years in advance of Tarnier's; and, still further, according to Stoltz, Hermann's, 1842, exactly resemble the latter.

Dr. Landis states that we may decide when to abandon the forceps for the perforator by the condition of the mother. But ought not that of the fetus to be considered? for if, for example, it be dead, why prolong the mother's suffering? and, on the other hand, if it be living, but death imminent, as revealed by auscultation, why not use a little more force and hasten delivery? Dr. L., apparently founding his belief upon the statements of Poppel and Kristeller, that a force of from four to eight pounds is often enough to expel a head that had lain immovable for hours, alleges that traction in the right direction need not be very forcible. We are not sure this is true for the majority of cases in which instrumental delivery is necessary. The very accurate researches of Poullet (*Archives de Tocologie*, February, 1880) seem to show that the maximum force of expulsion does not exceed twenty-five kilograms or about fifty-three pounds, and we can not see well how artificial delivery can be frequently effected by a force so much less as is four or even eight pounds.

The directions given as to the forceps for compression are excellent. But when he comes to the question of *leverage* we doubt whether his views will be sustained, although he strongly fortifies them by quoting the able paper of Dr. Albert H. Smith, which is found in the third volume of the Transactions of the American Gynecological Society.

In giving a series of rules as to *when* the forceps should be used, the following language is used: "Whenever the second stage of labor has lasted two hours, and the head is still stationary or advancing with great slowness, we should inform the

patient we are about to apply the forceps." So far as the first condition is concerned, it may be the time is too long, and as to the second too short. One of the best obstetric practitioners we know had a resulting urinary fistula where the head was stationary half an hour; and in those cases where the progress is very slow, the conditions of mother and fetus being good, a delay of more than two hours in applying forceps will not be injurious. When to use forceps, is one of the many obstetric problems for which arithmetic gives no solution.

But we must terminate this notice, and we do it heartily thanking the author for his valuable work—a work in which we find much more to believe than to doubt or deny, much more to commend than criticize. Its author has had the originality and boldness to break with some long-established obstetric traditions, to criticize some of the ablest obstetric teachers, and the future will decide as to whether all the positions he has taken will be sustained.

Differential Diagnosis: A Manual of the Comparative Semiology of the More Important Diseases. By F. DE HAVILLAND HALL, M.D., Assistant Physician to Westminster Hospital, London. Second American edition. Extensive additions. Edited by FRANK WOODBURY, M.D. Philadelphia: D. G. Brinton. 1881. Octavo. Pp. 222.

This work is divided into two parts. Part first treats of the fevers and diseases of the blood; part second of diseases of the nervous system, diseases of the respiratory apparatus, diseases of the circulatory apparatus, diseases of the digestive system, and diseases of the urinary system. One thing especially to be commended is the arrangement of the symptoms of diseases likely to be mistaken for each other in parallel columns, so that a differential diagnosis is rendered more easy. This plan is observed throughout the book. This edition is an improvement on the first, and stands next to Da Costa.

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Clinic of the Month.

SOME PRACTICAL POINTS IN DIGESTION.—Dr. J. Milner Fothergill, in The Practitioner, says:

All digestion is a process of solution by hydration; that is, as starch is converted into sugar by adding a molecule of water to it, under the action of a ferment, so the albuminoid "proteid" is converted in the stomach into a "peptone" by a like process of hydration. It is easy to see that our food could not very well be stored in soluble form by the vegetable world, which from ammonia, water, and carbonic acid builds up for us starch, sugar, albuminoids, and fats. If soluble in water they would constantly be dissolving in rain. So they are insoluble; and the digestive act renders them soluble, so that they can pass from the intestinal canal, through its walls, into the blood first, and from it again to the viscera and tissues. Let us take the career of starch. The act of bursting the starch granule open by cooking is a preparatory act of no little value in lessening the demand upon the digestive processes. This is illustrated by the practice of advanced agriculturists who cook the starchy matters of the food of their stock or ferment them by brewer's grains. Under the influence of the ferment of the saliva starch is converted into sugar. This ferment is known as "diastase;" and an identical "ferment" is produced in the process of malting barley, where the starch of barley is "hydrated" into malt. This barley ferment is now largely used medicinally for ill-nourished infants and invalids, and very useful it is. But the manner in which the makers instruct us to use it in their appended labels tells how little is really known of the body ferments. On huge gallon bottles of maltine we read that a teaspoonful must be taken after a meal. Now, as it happens, "diastase"—whether from saliva or barley, it matters not—is inactive in the presence of an acid, and taken into the acid stomach as directed it is inert, simply thrown away so far as it is a ferment, and reduced to the level of other food—no longer a digestor, and itself to be digested. It is in the brief time before starchy matter reaches the acid stomach that "diastase" is active and functionally operative. What starch reaches the stomach is, in all probability, left to be digested by the action of the pancreatic ferment.

Well, now, what practical lesson is taught us by the possession of this physiological information? In the first place, it tells us that children and dyspeptics, as well as invalids, should take their food slowly. It should not be bolted, even when simple milk and porridge; it ought to be well chewed in the mouth and thoroughly mixed with saliva; in fact, time must be given for the saliva ferment to act upon the starch, in order that it may be operative indeed. And this brings us to a matter on which a few words may be said with advantage.

All digestion is a process of solution, but for proper perfect solution disintegration is essential and indispensable. The food, no matter whether starchy, albuminoid, or fat, must be reduced to tiny minute particles before the ferments can act efficiently. We grind our corn before we cook it. We disintegrate it before it is subjected to a process which chemically affects it. That is, so much "digestion" is actually performed upon the food before the digestion of the body is brought to bear upon it. So we cook our flesh in order to make it less tough; that is, in order to make the tiny fibrillæ of the muscles fall more readily asunder. This reduces the act of chewing very considerably, and so reduces the work of digestion. The flesh of the pig and calf is especially indigestible because it is not readily disintegrated, as dyspeptics know to their regret when they have been indiscreet enough to partake of either, often when some persuasive woman's voice has persuaded that "that *little* piece can't hurt you." These persuasive women are valuable allies for the profession! Cooking and mastication then reduce the labor of the stomach in disintegration. And again, we see how bad teeth and habit of eating rapidly lead to indigestion. With bad teeth mastication is imperfectly performed and disintegration by the movements of the stomach rendered more difficult and also painful. The digestion in the stomach is thus converted from a painless, rather comfortable matter to a painful and uncomfortable matter. The food should then be thoroughly chewed, for divers reasons.

Now we can profitably return to the matter of the effects of artificial diastase. It is quite clear that children and invalids should be taught to eat slowly and mix their food patiently with saliva. The dairy farmer's wife and maids used of old to patiently feed their calves "off the finger;" that is, they made the calves lick the milk from their fingers, and so it got well mixed with saliva. But the increasing pace at which we live has reached the slow-going agriculturist, and now the calves are allowed to bolt their milk, with the natural consequence of too firm curds in the stomach, diarrhea to get rid of them, a bottle of medicine to stop nature's efforts, and an increased mortality among calves. So when children do not eat slowly their digestive processes

are embarrassed; and especially is this the case where the milk-teeth are decayed.

Then, again, in order to aid the defective action upon starch by the natural diastase being deficient in quantity or impaired in power we add the artificial diastase "maltine." But, as Dr. Roberts points out, in order to make this ferment operative it must not be taken after a meal is over. Rather it should be added to the various forms of milk porridge or puddings before they are taken into the mouth. About this there exists no difficulty. Maltine is a molasses-like matter, and mixes readily with the milk, gruel, etc. without interfering either with its attractiveness in appearance or its toothsomeness; indeed its sweet taste renders the gruel, etc. more palatable. A minute or two before the milky mess is placed before the child or invalid the maltine should be added. If a certain portion of baked flour, no matter in what concrete form, were added to plain milk and some maltine mixed with it before it is placed on the nursery-table, we should hear much less of infantile indigestion and malnutrition.

And one practical point must be well borne in mind. In the present *furor* for fluid beef-juice now much prevailing, beef tea—the stronger the more beneficial, of course think the laity—of Liebig's extract, etc., the necessity for starchy matters is being quite overlooked, or, to be very safe, underestimated. These meat products furnish—the best of them—little glycogen or animal starch, and yet that is the fuel-food of the body *par excellence.* We must be more guided by rational knowledge, by physiology, and not by fashion, in our dietetics. When there is a very feeble digestion then the digested milk and milk gruel advocated by Dr. Roberts must be employed. Full directions for their preparation are provided along with each bottle of the *liquor pancreaticus* which he advocates for artificial digestion.

Such preparations are indicated when milk curdles too firmly in the stomach, and the resultant curd resists the solvent action of the gastric juice and passes per anum in such quantity that it can be seen in the stools. Whether in typhoid fevers or other conditions, it is well to attend to this point. For solution disintegration is indispensable. If the curd formed in the stomach is too firm to be broken to pieces, then the milk can not be digested. When such firm curdling is present, whether in child or adult, then it must be dealt with. In milder cases equal quantities of milk and lime-water, with a teaspoonful of baked flour mixed in each pint, will check the excessive curdling. Here the particles of the flour mixed with the milk undergoing the curdling process mechanically render the curd less firm and tenacious. If the acidity be still more pronounced then it may be necessary to

mix ten grains of prepared chalk or five grains of carbonate of magnesia to each pint of milk, or milk and water, along with the baked flour. If beef tea or mutton-broth be taken it is well to add to each pint a teaspoonful of baked flour, or fine oat meal, or maize flour, or even some boiled arrow-root, which is very thin. Such addition is requisite to give the meat extract a higher food value.

Then comes the question of the digestion of albuminoids. Under the influence of the gastric juice an insoluble albuminoid, a "proteid," is converted into the soluble "peptone." As such it passes into the blood, where it at once passes back to proteid form. This digestion into a "peptone" is achieved by the addition of a molecule of water, and as soon as the soluble peptone has reached the blood it is dehydrated back to a proteid. This is the special function of the stomach, viz. to digest albuminoids. And here again we see that disintegration is essential to solution. If the albuminoid be flesh it must first be cooked, which makes it tender, so that one minute fibril readily parts from its next neighbor. And as persons advance in years they usually prefer their meat well done, while youthful appetites like underdone meat generally. Then it must be masticated so as to thoroughly break down the separate fibrillæ. If these two preparatory operations have been imperfectly performed, then the work of the stomach is increased. Hence the movements of the stomach are active and prolonged, so that the individual becomes conscious of them. This is the indigestion of "imperfect disintegration." This form of dyspepsia is very amenable to treatment, and the indications are plain enough. Suitable food must alone be taken. Mastication must be efficient and careful. If the teeth are decayed the dentist must be consulted, and false teeth, if necessary, supplied. Practically milk-puddings, with or without stewed fruits; "steam-cooked crushed cereals," to be procured of leading grocers; fish, especially short-fibered white fish, and the white flesh of fowls, are to be preferred. Let the time spent at meals be sufficient for proper mastication and the mixture of the saliva with the starchy or glycogenous matters of the food. By this last the starch is converted into sugar, which, being soluble, passes from the stomach to the blood, and the gastric digestive act is not embarrassed by the presence of too much starch. These little matters reveal their practical importance under the bright light which advancing physiology is throwing upon them. They have long been known to careful clinical observers empirically and as matters of fact, but now we know them scientifically, which reveals their importance to all. Thus perfect disintegration is essential in all cases of dyspepsia. After that comes the question of "solution."

Digestion is really solution. The gastric juice is the solvent of the albuminoid elements of our food. Now when this juice is secreted in insufficient quantity or is impaired in quality, then the solvent process does not progress properly. We have then indigestion from imperfect action of the gastric juice. Having secured for the patient a suitable dietary and as perfect disintegration as the circumstances of the case will permit, we come to the next matter, the gastric juice. We must secure more gastric juice or a better quality of it. For this end we stimulate the secretion by appropriate measures, or we employ artificial digestive agents procured from outside the organism. For the purpose of whetting the appetite, and thus acting reflexly upon the gastric secretion, we employ the class of agents known as bitters. To these we add hydrochloric acid. Ringer has pointed out how an alkali, taken into the stomach before a meal when the stomach is alkaline, produces a freer flow of acid afterward. Consequently we comprehend the value of that well-known preparation indifferently termed "haust. stomach" or "mist. mirabilis" or "mist. rhei et gentian" in the various hospitals—a combination of world-wide fame. One drawback to this combination of rhubarb, gentian, and soda is that the student becomes familiar with it and its virtues, but remains ignorant of its exact composition, and so loses sight of it when he enters upon practice for himself. Such a mixture before meals, followed by ten drops of hydrochloric acid after the meal, will often make the difference between imperfect digestion, producing discomfort, and digestion so perfect that it does not provoke consciousness. Or where there is much irritability in the stomach—that is, when a bare, red tongue, imperfectly covered with epithelium, suggests a like condition of the internal coat of the stomach—then bismuth is most soothing. The mixture of soda, bismuth, and calcimba is in use for such indigestion, with good results. The dietary in such a case should consist of the blandest food, milk with or without baked flour in it, beef tea with baked flour; nothing more till an improved condition of the tongue tells of a more normal condition of the stomach. In such cases a plain opium pill at bedtime often soothes the stomach very nicely. Then there are cases where imperfect digestion is accompanied by the production of fatty acids, butyric and others, which add the phenomenon of "heart-burn" to the symptoms; or they may be later products formed, which cause the bitter hot taste in the mouth on awakening in the morning or after a post-prandial nap. It is usual to treat "heart-burn" by the exhibition of an alkali, but this is not good practice. In union with an alkali the offending matter is nearly as objectionable as in the form of free acid. It is much better to give a mineral acid, as the hydrochloric or

phosphoric, which breaks up the feebler organic acid. By such means we can aid the digestive act. Then at other times the indigestion is due to lithiasis, where the presence of uric acid impairs the efficiency of the gastric juice. In these cases all measures which do not entertain the causal relations of the dyspepsia are of little use. By the administration of potash in a bitter infusion well diluted, taken half an hour before a meal, this element of trouble is removed. In all cases of gouty persons suffering from dyspepsia, do not forget this cause of impairment of the gastric juice.

Having thus cleared the digestive act of all impeding factors, there comes the question of direct stimulation of the flow of gastric juice. We know that there are agents which in considerable quantities excite inflammation of the coats of the stomach, and which, when taken in medicinal doses merely, increase the vascularity of the gastric mucous membrane, and so stimulate the flow of gastric juice. Such agents we possess in arsenic and ipecacuan and certainly alcohol. The action of the latter is often excellent in weak digestion, either taken with the food or as a fillip to the appetite immediately before food. This is seen in "the nip of gin and bitters" so commonly taken before dinner by men who wish to thoroughly enjoy their food.

Ipecacuan formed a portion of a good old-fashioned dinner-pill, and between its direct action upon the gastric mucous membrane and its action upon the liver as a hepatic stimulant it must come into use again before long. A dinner-pill of

Pulv. ipecacuan. . . . . gr. j;
Strychniæ . . . . . gr. $\frac{1}{20}$;
Pulv. pip. nig. . . . . ℥ ij;
Pil. al. et myrrh . . . . . gr. ijss.

every day will often produce excellent effects. Then arsenic may be taken as three drops of Fowler's solution after dinner, or in the above pill substituting the same dose of arsenic for the strychnine.

Beyond these measures lies the use of artificial pepsin. Pepsin, if properly prepared, will digest albuminoid bodies outside the body. The pepsin of the pig or calf is potent within the human stomach. But as pepsin only digests albuminoids in an acid medium, it is clear it must be given shortly after a meal. And from what has been said before it is quite clear that in each case the medical attendant must distinguish between the indications for giving maltine to digest starch and pepsin to digest albuminoids. There is room for fear that this distinction is not invariably made as carefully as it ought to be made. Yet it is evident that in every case such discrimination is necessary for its right management, and it will not do to give maltine or pepsin

indiscriminately. By careful attention to these different matters, clearly distinguishing the indications for treatment in each case, the difficulties can usually be surmounted successfully; but it is by no "happy-go-lucky" plan, or, rather, want of plan, which will enable the practitioner to so diet and treat these patients as to be generally successful. A chance success here and there may be attained, but systematic success can only be hoped for by systematic study of the subject.

All this time fat has never been discussed. The digestion of fat is not effected either by the saliva or the gastric juice. It is a mooted point yet how far some portion of the fat in the stomach may not be broken up into fatty acids and glycerin, and that these fatty acids may aid the bile and the pancreatic juice in the emulsionizing and saponifying of the rest of the fat. But the digestion of fat takes place beyond the stomach, to speak broadly. When the contents of the acid stomach pass the partially-relaxed pyloric ring they come into contact with the bile and are rendered alkaline, and then the action of the pancreatic secretion comes into play. About this last matter older practitioners know little. That is not their fault, however. The subject is one which has been cleared up since their student days. The pancreatic secretion contains four principles: (1) a ferment which changes starch into sugar; (2) trypsin, which digests albuminoids in an alkaline medium; (3) a substance which will curdle milk; and (4) another substance which will emulsionize fats. Consequently, contrary to what is thought by many, it is beyond the stomach that the greatest digestive activity occurs. When the contents of the stomach pass into the small intestine the pancreatic secretion commences its operation. The remaining starch unconverted into sugar by the saliva is acted upon now once more, the albuminoids not already digested by the gastric pepsin are digested by the pancreatic trypsin, while the fats are emulsionized so that they can be taken up by the lacteals in the villi of the intestines. Here then we have digestive activity in its most pronounced form. But of indigestion here we as yet know nothing; we merely know that fat is not digested in certain cases. Yet there are some matters connected with the digestion of fat which are not made as much the subject of thought as they ought to be. There is the broad fact that cod-liver oil, cream, butter, the liquid portion of fried bacon, are the most digestible fats; that these can often be assimilated when the ordinary fat of meat is not digested and is turned from with loathing. Many a child will reject with disgust the fat of meat, so sweet and toothsome to many persons with good assimilative powers, and readily take cod-liver oil, admitting that the latter is not attractive

by its taste. There is clearly something here in the albuminoid envelop of the animal fat. Fat, as found in the bodies of animals, consists of connective corpuscles crammed with fat globules. Before such fat can be digested the albuminoid envelop must be removed. How far this film of connective tissue interferes with the digestion of the fat contained in it, we can not yet say. But the facts stand in a very suggestive relationship.

Now what means have we for influencing this portion of the digestive act? Again we may stimulate the pancreas or fall back upon artificial pancreatic secretion. For the purpose of stimulating the pancreas we possess one agent alone of which we as yet have any knowledge. This is sulphuric ether. Dr. Balthazar Foster, of Birmingham, first brought forward ether for this purpose, giving it with cod-liver oil, where the oil alone did not seem to be assimilated. This work has been corroborated by the report of a commission appointed in the United States of America to investigate the matter. It is certainly a measure well worth trial in cases where pancreatic digestion is impaired.

Then there is the use of pancreatic secretions obtained from that useful omniverous animal, the pig. These, if well made, are of great potency, and are not objectionable in taste. We all know that Dr. Horace Dobell has long had before the profession a "pancreatic emulsion" for the treatment of phthisis especially. There can be little if any doubt about the fact that it is the imperfect assimilation of fat which impairs "interstitial digestion" in the body. This impairment gives us those modifications of nutrition which are summed up in the word "struma." We know that if we can manage to enable a patient with pulmonary phthisis to digest and assimilate cod-liver oil, tissue-nutrition becomes so altered that the development of tubercle is usually arrested. That is, we have once more given to growing tissue that fat which is essential to healthy formation. Call growths of tubercle by what name each man pleases, Virchow's broad view that tubercle is a growth of connective-tissue corpuscles degraded in quality, while produced in great quantity, is the one to hold in order to best grasp the subject from its therapeutic aspect. What we have to attempt to do is to give to the tissues the fat without which they are not healthy. Now the perusal of the foregoing remarks will tell every reader—him that reads and runs, as well as him who reads slowly—that in the treatment of tissue malnutrition, whether of phthisis or some other form, there are many points to be attended to beyond ordering cod-liver oil or change of air. The last, as being directed almost solely to the effect of the inspired air upon the lining membrane of the air-tubes locally, is a very narrow and limited view of phthisis; and it is desirable that

the doctors who sing the praises of different health-resorts should know a little more of general medicine and be a little less taken up with the atmospheric disturbances and the mere number of hours of sunshine of different localities. For instance, a young lady was sent to Davos the winter of 1878–79 and came back considerably improved. She after that came under my notice professionally, and I put her upon a course of pills containing arsenic and iron. On this she improved nicely, and I insisted upon her continuing the medicine during her stay at Davos last winter (1879–80) so as to derive the maximum benefit for the heavy expenditure. But when she got to Davos her doctor stopped the medicine without any communication with me in the matter. What are the consequences? She comes back in such a condition that her mother gives her the pills again, on which she soon improves. Now will any reasoning being believe that if that course of arsenic and iron had been continued during the stay at Davos the girl would not have been all the better for it?

In tissue-malnutrition it is not sufficient to merely order cod-liver oil and change of air, as is evident by what has gone before; but to first see that the digestive and assimilative processes are going on properly; that the food contains the requisite quantities of nutritive power with ready disintegration; that the natural digestive ferments are encouraged or supplemented by artificial ferments; and then comes the question of the assimilation of fats. The last is the crowning point of the therapeutic edifice, not its foundation. It should not be the first thing done to order the cod-liver oil, but to lead the organism up to its ready digestion, and ultimately to that of other less digestible but more stable fats. Then it is of the utmost moment always in disease to watch the condition of the tongue and the humors of the stomach. However capricious the latter, it must be humored and conciliated; and whenever the tongue becomes denuded of its epithelium or is covered with a layer of dead epithelium, the plan of treatment must be at once suspended; and if nausea or eructations follow the oil, then for a time it must be withheld. No matter how tantalizing to see a satisfactory progress checked, submission to the stomach is essential. To pursue the same line when the stomach is disturbed, is not good generalship. To retire for strategic purposes is not always the equivalent of defeat; it may be a wise and prudent maneuver. Very often indeed the ultimate result of a case hangs upon the readiness with which this strategic maneuver is executed. It is to be feared that the clinical skill of a generation or two ago in these matters of apparent minutiæ have been largely forgotten by a race who study disease in the dead-house, and who look at tissues, healthy and diseased, too exclu-

sively through a microscope. When the stomach will not tolerate milk, or milk and seltzer-water, or lime-water, even in small quantities, and great discomfort, only relieved by vomiting, follows any ingesta, then the case is very serious. In such cases then we may fall back upon the artificially-digested milk and milk-gruel of Dr. Roberts. Full directions are given along with each bottle of the liquor pancreaticus, without which the artificial digestion can not be carried on; so they need not be repeated here. Further, a nutritive enema with the requisite digestive ferment in it is also described on the wrapper. It is not only that Dr. Roberts's work is good and sound and valuable in itself, but it has a further and an almost priceless value in its suggestiveness and the thought about the matter of digestion in the minds of others which it is exciting.

Swayne on Laceration of the Cervix Uteri.—Dr. Joseph Griffiths Swayne, of Bristol, contributes to the final number of the Obstetrical Journal of Great Britain and Ireland an article upon the treatment of laceration of the cervix uteri.

In the introductory observation he says, "The extraordinary success achieved by the happy audacity of men like Sir James Simpson induces other experimenters to come to the front who with his boldness, but without his genius, venture upon new and untried paths simply because they are new and untried, and mistake innovation for improvement." Then follow some statements as to cauterizing, slitting, and stitching the cervix; and he states that he has been led to make these remarks in consequence of a paper which was read at the last annual meeting of the British Medical Association.

Dr. Swayne admits the statement of Dr. Pallen as to the frequency of cervical lacerations, but he denies their significance. Further on he suggests that the evil consequences of these lesions may be greater in America than in England, partly due to difference of climate and habits of life, and partly due perhaps to the "greater prevalence" in this country "of unlicensed practitioners of midwifery." "Prevalence" is good. Unlicensed practitioners of midwifery, according to Dr. Swayne, predominate in this unhappy country! And yet this country supports two journals devoted especially to obstetrics, while our British and Irish

cousins can not support one; indeed if they had given an equal support to that which the American profession gave the Obstetrical Journal of Great Britain and Ireland its discontinuance with the December issue would not have been required.

Dr. Swayne concludes as follows: "I must express my conviction that in this country, at all events, conservative surgery, such as Dr. Pallen recommends, is very seldom necessary; and I feel sure that most British practitioners would only have recourse to it as a *dernier ressort* when milder methods of treatment have failed. In gynecology, as in statesmanship, the truest conservatism often consists in 'letting well enough alone.'"

Now we do not believe in such inferiority of American obstetrics as Dr. Swayne does, nor do we believe in habits of life or climate furnishing an explanation of the alleged injurious consequences of cervical lacerations. It is not essentially a question of race, of country, of climate, of practitioners. Some of these alleged relations do not enter at all; others are incidental. And no theoretical consideration can set aside the established facts of Dr. Emmet and others as to the beneficial results of the operation which Dr. E. devised and first executed. Until Dr. Swayne observes the operation in suitable cases and its consequences, he is not a competent witness. Mere opinions can not nullify facts.

Finally, let us say that there is great danger of the operation being unnecessarily performed; that generally is the fact in all new therapeutic means proposed and upheld by recognized authorities. But the evil is self-corrective, and after a while this treatment will be assigned its clearly-defined limits.

False Dyspepsias. — Germain Sée, in a communication to the Academy of Medicine (*Archives Générales de Medecine*, February), gave first the characters from a chemical basis of true dyspepsia. Sometimes the gastric juice is altered as to the proportion of its constituents, hydrochloric acid and pepsin; one or the other may be deficient; the pepsin may undergo modifications of solubility, of quality, of functional energy. Sometimes the gastric juice is, as in mucous catarrh, mixed with a

certain quantity of mucous, which in a certain degree prevents its action. Sometimes the pepsin is prevented from acting certainly by the product of the metamorphosis of the substances; that is, of the peptones themselves in excessive alimentation; so too it may be imperfectly secreted as a consequence of insufficient alimentation.

In the false dyspepsia these chemical disturbances never occur. There is only found in different degrees the assemblage of phenomena which are attributed to dyspepsia, such as epigastric pains, meteorism, constipation, etc. Sée designates them gastro-intestinal atonies, and studies them under five types: 1. Simple atony of the intestine with habitual constipation and permanent tympanites; 2. Atony from obstruction (hemorrhoids, prolapsus, rectal polypi, prostatic hypertrophy, hernia, stercoral tumors); 3. Intestinal atony with concreting mucilaginous secretion; 4. Intestino-biliary atony due to absence of bile; 5. Spasmodic atony of the stomach, known as gastralgia.

Nitrite of Amyl in Epilepsy. — Dr. Maragliano (*Note di Clinica Medica*, Genoa, 1880) determined to try whether nitrite of amyl would so modify the cerebral circulation as to have a permanent effect in diminishing the fits of epilepsy. In inhaling the medicine he used a bag of caoutchouc containing some cotton wool, which was applied to the nostrils while the patient was allowed to inspire air through the mouth. The dose given was much higher than that used by other physicians. Beginning at ten drops he gradually mounted to forty, and he continued the inhalation as long as fifteen minutes without any instances in which harm was observed. Where the epileptic attacks were numerous the inhalations were repeated once every hour. Dr. Maragliano quotes the experiments of Schüler, who found that in rabbits in which an opening had been made in the skull from five to three inhalations caused a dilatation of the venous and arterial vessels of the pia mater. The smaller arteries began to pulsate, and some of them to assume serpentine curves. The brain expanded and bulged out of the trepanned hole. He no-

tices the denial of Vulpian that nitrate of amyl has any congestive action on the brain, but finds from his own observation that the temperature of the head is increased by the action of this drug. In like manner he rejects the negative observations of Loemisch, Stammeshaus, and Pick for those of Aldridge, Tebaldi, and Gradenigo, who hold that the vessels of the retina are dilated after the use of inhalations of amyl. Ladendorf found that the temperature of the mouth was raised by half a degree C. during an inhalation. That this drug impedes the oxidation of the blood is universally admitted. He found that out of thirty cases after inhalation of amyl sugar appeared in the urine in twenty-four and was totally absent in six. All traces of the sugar passed away entirely after three to six days. This appearance of sugar is supposed to be owing to the dilatation of the hepatic vessels. He admits that there are cases in which amyl is of no use in epilepsy. It promises most in those patients in whom the face becomes pale. Dr. Maragliano considers that the power this drug has in dilating the vessels of the brain (*la sua azione iperemizzante sul cervello*) is the cause of its therapeutic value in epilepsy.

Supra-umbilical Ovariotomy.—Dr. Bonner, of Nimes (*Annales de Gynécologie*, January, 1881), recently removed a very large ovarian tumor containing forty-eight liters of fluid, making the incision between the sternum and the umbilicus, in consequence of the tumor, from the great abdominal distension projecting to the knees. The patient was forty-one years old. The incision was seven centimeters in length. All antiseptic precautions. Patient recovered.

Piscidia Erythrina.—The action of this drug is thus described by Dr. Isaac Ott, in Brain:

It is narcotic. It does not affect the irritability of the motor nerves. It does not act on the peripheral ends of the sensory nerves. It reduces reflex action on the centers of Setschenow. It produces tetanus by a stimulant action on the spinal cord. It dilates

the pupil. It is a salivator. It excites sudoral secretion. It reduces the frequency of the pulse. It increases arterial tension by stimulation of the monarchical vaso-motor center; this rise of pressure is soon succeeded by a fall, due to an action on the heart and the vaso-motor center.

CONTRACTION OF THE UTERINE ORIFICES IN RELATION TO DYSMENORRHEA AND STERILITY.—Pajot contributes to the December number of the *Annales de Gynécologie* a paper with the above title. His conclusions are the following: As all obstacles to the ready flow of the menstrual blood, contraction of the canal may be one of the causes of dysmenorrhea, but not an inevitable cause.

When the physician believes this to be the cause, it is necessary to enlarge the two orifices.

Such enlargement by incisions exposes the patient to grave consequences and even to death.

Plugs, tents, dilating bodies to be retained, sometimes also cause very serious accidents.

The dilatation by graduated dilators, managed prudently and only used for a few minutes at each *séance*, have, on the contrary, so far proved absolutely inoffensive.

The external orifice only need be dilated for sterility consequent upon contraction.

In this last case the dilatory action exercised transversely appears to produce the condition more favorable to fecundation than circular dilatation.

Notes and Queries.

UNIVERSITY OF LOUISVILLE.—The Commencement exercises of the University of Louisville, Medical and Law Departments, took place on Friday afternoon, February 25th, at 2:30 o'clock, in Macauley's Theater. The following is the list of graduates and honor men of the medical class:

LIST OF GRADUATES.

Abney, Olin L., Louisiana.
Allcock, James C., Kentucky.
Adams, Alvin M., Kentucky.
Alexander, Percy, Kentucky.
Bond, James A., Missouri.
Browder, George R., jr., Kentucky.
Branch, John S., Louisiana.
Bailey, Alexander, Kentucky.
Bramlette, William M., Tennessee.
Caldwell, Beverly, Texas.
Cordier, Albert H., Kentucky.
Clemens, James E., Kentucky.
Cummins, Zachariah, Illinois.
Calvert, John H., Kentucky.
Caldwell, James K. P., Tennessee.
Collins, Daniel, Kentucky.
Davis, Thomas H., Kentucky.
Dugan, William C., Kentucky.
Davis, Maynard H., Kentucky.
De Boe, William J., Kentucky.
Davis, Charles P., Indiana.
Ellis, Collin E., Missouri.
Ellis, Mumford W., Mississippi.
Ellis, Walter P., Kentucky.
Everett, John D., Louisiana.
Edwards, Thomas A., Missouri.
Evans, James S., Mississippi.
English, Bell, Illinois.
Fort, John I., Texas.
Foreman, Robert L., Arkansas.
Fitzpatrick, Joseph B., Alabama.
Gray, William R., Mississippi.
Gilchrist, Luther M., Kentucky.
Gabbert, Zachariah T., Kentucky.
Hawkins, John T., Arkansas.
Hoskins, John S., Kentucky.
Hardin, William G., Texas.
Hooper, Robert B., Texas.
Hensley, John H., Indiana.
Howard, William A. Tennessee.
Harman, Stephen B., Alabama.
Hawkins, James R., Kentucky.
Harris, Jasper M., Kentucky.
Hartman, Andrew J., Tennessee.
Haggard, Clarence K., Kentucky.
Jones, Edward J., Kentucky.
Johnson, Wesley T., Mississippi.
Jordan, J. Walter, Mississippi.
Leech, Joseph S., Kentucky.
McClatchy, John H., Mississippi.
Milam, John W., Indiana.
Miller, William S., Texas.
Meincke, Herman W., Germany.
McKim, Vincent I., Pennsylvania.
Martin, Aurelius, Mississippi.
Moore, James A., Indiana.
Martin, James A., Tennessee.
Meng, Walter B., Louisiana.
Murphy, James B., Indiana.
McAchran, John J., Kentucky.
Moore, Lynn B., Kentucky.
Martin, Jeremiah A., South Carolina.
McGowan, John W., Indiana.
McCarley, John W., Mississippi.
Paswater, Gilbert, Indiana.
Pugh, William E., Arkansas.
Pate, Bloom J., Mississippi.
Purdom, James F., Kentucky.

Paynter, Charles M., Kentucky.
Robinson, James L., Indiana.
Reeve, Joseph L., Indiana.
Riley, John C., Texas.
Ruddell, Isaac N., Indiana.
Simpson, George F., Kentucky.
Scott, Taylor W., Kentucky.
Stephens, William P., Texas.
Smith, Albert D., Indiana.
Smith, George W., Kentucky.
Satterfield, George W., Texas.
Shultz, Charles A., Texas.
Stanley, Henry N., Georgia.
Smith, Joseph H., Kentucky.
Stinson, Henry C., Louisiana.
Starr, William L., Indiana.
Stewart, William M., Texas.
Snyder, Edward W., Texas.
Sowell, Cornelius B., Texas.
Torrance, John M., Indiana.
Taylor, Charles B., Illinois.
Turner, Charles B., West Virginia.
Turner, J. Monroe, North Carolina.
Travis, Edward A., Tennessee.
Williams, William R., Indiana.
Wilson, Samuel R., Indiana.
Wilkerson, William C., Kentucky.
Weir, Alonzo G., Indiana.
Wilson, Cyrus L., Indiana.
Wedding, Sylvester J., Kentucky.
Wyatt, Benjamin F., Kentucky.
Yeager, Newton, Indiana.

HONOR MEN.

John S. Hoskins, M.D., of Kentucky.
Percy Alexander, M.D., of Kentucky.
Newton Yeager, M.D., of Indiana.
William C. Dugan, M.D., of Kentucky.
Albert H. Cordier, M.D., of Kentucky.
Robert L. Foreman, M.D., of Arkansas.
William A. Howard, M.D., of Tennessee.
Joseph B. Fitzpatrick, M.D., of Alabama.
James A. Moore, M.D., of Indiana.
Jno. W. Milam, M.D., of Indiana.

The Yandell gold medal, named in honor of the late Dr. L. P. Yandell, sr., was awarded, for the best class-standing, to John S. Hoskins, M.D., of Kentucky; the second gold medal, for second place in class-standing, was awarded to Percy Alexander, M.D., of Kentucky; and the third to Newton Yeager, M.D., of Indiana.

THE UNDERGRADUATES' CONTEST.

J. M. Ray, of Kentucky, was awarded the first prize, a case of instruments, offered by Arthur Peter & Co.; A. W. Chapman, of Missouri, was awarded the second prize, a copy of Erichsen's Surgery, offered by John P. Morton & Co.; J. F. Meffert, of Missouri, was awarded the third prize, a case of instruments, offered by Simon N. Jones.

The Faculty Valedictory was delivered by Prof. E. R. Palmer, M.D., and will well repay perusal.

Gentlemen of the Medical Class: It is said that when one in the full vigor of health suddenly encounters imminent death the impressions of his early life, which had long ago been forgotten, return to him in a swiftly-moving panorama as vivid and fresh as if stamped but yesterday upon the tablets of memory. When I found myself a few

days ago confronted with the duty of speaking the faculty farewell to you on this occasion I encountered a somewhat similar experience. My memory reverted more than a quarter of a century to my boyhood, and recollections not wholly inappropriate to this hour crowded upon me. I was back again in a New England village, by the gate of my old ancestral home at the foot of College Hill, and a long line of medical students came filing down its narrow path on the way to their noonday meal. I thought of that old medical school, its faculty of great men and its students from every part of the country, of doctrines there taught which had even reached my young ears and made impression there; I thought of a hundred things that characterized medical teaching at that time, and then, like the swing of a pendulum, my mind came back again to today, to modern medical education, to the institution whose labors for this scholastic year we are now closing, and I saw, or fancied I saw, in the two pictures material appropriate for a valedictory.

Thirty years ago medicine in the main was taught in a strictly didactic manner. Barring dissections and an occasional class-room experiment in chemistry, instruction in most of the American colleges consisted wholly in long and elaborate dissertations from venerable professors, not a few of whom rode, with the tenacity of a John Gilpin, some pet theoretical hobby, deeming it their highest duty to parade that hobby daily before the eyes and ears of their patient and long-suffering pupils. Several of the most celebrated schools of the country were then to be found in charming northern villages, where the professors of the great metropolitan colleges could go in the spring of the year to rusticate and give a spring course.

Such was the medical school of my native town. You can easily imagine what a grand treat the yearly opening of the college was to the villagers—how the boys stared at the spruce-looking students, and how the girls put on their best frocks and most bewitching smiles as the new-comers strolled up and down the street or gathered in knots about the old white tavern. In so small a town the students soon learned to know nearly every one, and in a few weeks no party or sugaring frolic took place but what was sure to muster its quota of young Esculapians. And so the session rolled on, its dissertation, oft-times dry and prolix, freely spiced with country rollicking, until commencement-day arrived. It seems to my memory as if that day was always the perfect type of early summer. Every thing put on its holiday attire. Never was grass so green on the village square. The hillsides were white with myriads of fragrant apple-blossoms. The giant pines of the mountain-tops nodded gracefully to one another

across the narrow valley, through whose center, singing merrily as it escaped from beneath the great mill-wheel, rushed the bright river on its way to the sea. On every road that approached the village, by every conceivable conveyance, came the country people, some with throbbing hearts and eager eyes, expecting to see a son or brother enter a great profession. The stores were closed for a half-holiday, and, as if to render the scene a perfect one, troops of school-children, with handfuls of wild violets from the mountain-side and primroses and daisies from the meadows, thronged the graveled sidewalk, filling the air with songs and gleeful laughter. The exercises were held in the church at the head of the public square, and, as the faculty and class assembled, that pride of the small boy, the village brass-band, made the stained windows of the old church rattle in their leaden frames to the inspiring strains of Hail Columbia. The programme was short. A venerable United States Senator, the President of the college, conferred the degree; a few words of advice were spoken by one of the faculty, and the end was reached. A luncheon of hard cider and doughnuts followed, then a final game of ball on an adjacent meadow, then dinner, and then in the stages and on top, by private conveyance and on horseback, the newly-fledged doctors scattered into life as cheer answered cheer to the waving of handkerchiefs and the dimming of eyes too as some village maiden felt her heart go away from her behind the prancing stagers.

This is no fancy sketch, gentlemen, but represents a true scene from life—from life, however, of the past. Students no longer turn their ambitious footsteps toward that village. The wise faculty was long since dismembered. Rugged, weather-beaten children play hide-and-seek among the tall, white columns of the building on the hill, and the spacious halls that once resounded with words of learning and echoed with applause have, by the aid of the carpenter's saw and hammer, been transformed into tenements for the laboring classes. A natural inquiry from each of you might arise as to the cause of this decadence. To answer briefly would be to say that the Woodstock school fell a victim to the inevitable, the inexorable mandate of progress; and so, while some of its old friends may heave a sigh and wish for the times that were, we, as we contemplate the advances that have of late been made in the teaching of medicine in this country, can view its ruin, even in all of its unpoetic dreariness, with no sadder feeling than respect for the great minds that in its palmy days adorned it.

Let us review some of the changes that have transpired as constituting this progress. When the principle of clinical teaching, which, I believe, had its inception in Paris, first found foothold on this conti-

nent, the foreseeing minds of the medical profession discovered in that advance the doom of the rural schools. To impart knowledge to the individual, or to the few, at the bedside of the sick, was, it is true, no new idea of this age; but to the amplification of that idea to the extent of bringing large classes into actual contact with the diseased and maimed, and to the demanding of the student, as the prerequisite of graduation, that he shall have had clinical instruction in medicine and surgery—to this revolution in medical teaching modern times may justly lay claim. Thus it became essential to the success of any medical college that it should have immediate and ample access to clinical material, and such material could be found in such cities only as were metropolitan enough to have a large population of poor who would of necessity be forced to seek the hospitals and dispensaries provided not only for their benefit but for the impartation of clinical knowledge to the student.

It is not, however, my purpose to dwell today upon the immense benefits accruing to the student from this advance in medical teaching. So fascinating was it, and so brilliant the results, that it bid fair for a time to overshadow all other forms of medical instruction. The great French clinician Trousseau declared, in the introduction to his masterly work on clinical medicine, that student life should have its very beginning at the bedside of the sick.

Fortunately, however, there were strong men in the profession who were not to be blinded to the first importance of other means of instruction, and the results of their labors are to be seen today in the fine balance that exists in the curriculum of our best colleges. A healthy reaction soon came, clinical teaching assumed its proper high place, and a rapid advance began in the departments of chemistry and physiology. Some of the changes in these departments, especially the latter, I propose to cite in illustration.

It is just about twenty years since Prof. Dalton, of New York, issued the first edition of his now well-known work on physiology—a work destined at its birth to place the chaplet of well-deserved and enduring fame upon his brow, and one that has ever since given a powerful impetus to rational medicine. It may be of interest to note that this book had its inception when Dr. Dalton was a young professor in the New England school which I a moment ago described. Dunglison and Draper had both written strong books upon the subject for the American students before Dalton, but it remained for him to turn the attention of our students generally to the fascinating field of physiological experiment and analysis. No work in any tongue has ever excelled his and but few have approached it in the simplicity and

purity of its style or the conciseness and correctness of its matter. A score of elaborate treatises have since been written here and in Europe, and older works have been rewritten to meet the demands of advance. Among the former our country again stands in the front, represented by the physiology of the younger Flint, a magnificent and exhaustive library of five volumes and one which, like the earlier work of Dalton, handles the most intricate problems in the science of life with a clearness and an absence of excessive scientific phraseology that especially recommend it to the beginner. If I were asked wherein these writers have especially influenced medical teaching I would reply that to the first we owe the impulse that has been given to the study and use of the microscope, and that the latter has done much in directing attention to general laboratory work, including vivisections. Both, however, deserve credit in each direction.

Up to within a few years but a few of the students and practitioners of the country had so much as seen a microscope, and even today the plan of giving practical instruction in microscopy and chemistry to medical students generally is yet to be adopted by many of our colleges. In a recent London medical journal medical education is congratulated upon the inauguration of a movement looking to the introduction of practical laboratory work in one of the leading English medical schools. During the three years that this system has been in operation in the University of Louisville there has been accomplished such a marked improvement in its students in a knowledge of the great underlying essentials of chemistry and physiology as to demonstrate beyond question the wisdom of such an innovation. I asserted just now that when clinical instruction created a revolution in the manner of medical teaching it remained for physiology to carry onward the lines of advance by the application of its means of research to the enlarging of our knowledge of the means by which disease may be prevented or cured. I propose to cite briefly some of the benefits which the practitioner has reaped from the physiological researches of recent years.

Twenty years ago some poetic genius crystallized the then current opinion regarding one of the most prominent remedies of the dispensatory in the sentence, "Digitalis is a finger that points to the grave." Such was the dread in which that potent drug was held because of its supposed terribly-depressing influence upon the heart, that whoever administered it did so with much distrust and watchfulness. In 1867 Cyon and Ludwig conducted a series of physiological experiments upon the hearts of living animals, the result of which was the clearing up of a vast deal of the mystery that had surrounded the relations of

the nervous system to that important organ. Among the fruits of their discoveries were a series of experiments, notably those of Fothergill, with digitalis and its action upon the animal heart. It was found by these investigations that where the heart was stopped by excessive doses of the drug its state was not one of paralysis as had been supposed, but the opposite one of tetanus, and so digitalis took its place as the first and best heart tonic in the materia medica—a remedy no longer to be dreaded, but rather to be justly prized as of inestimable value in the treatment of all phases of cardiac exhaustion.

The great scourge of the English people is gout, an exceedingly painful malady, that either by acquisition or through heredity afflicts a large percentage of their best society. Gout is found to be due to the presence in the system of the sufferer of an excess of uric acid. Physiology having determined that uric acid is due to the imperfect oxidation of albuminous matter, has in so doing given a key to treatment, namely, a diminution in the amount of albuminous food consumed by the patient and a greater supply to him of oxygen (fresh air)—a treatment found to be vastly more efficacious than the mere administration of medicine.

Physiology has quite recently established a phase of physiological medicine called by Bartholow and others the "law of antagonism." The action of medicinal agents upon the healthy body having been found out, drugs of known opposite action are utilized to antidote the action of one another. This advance will be found to be of especial value in cases of poisoning. Thus atropia is given as an antidote in opium poisoning, not simply because it will dilate the pupil of the eye that opium has contracted, but for the greater reason that it, contrary to opium, stimulates the heart and respiratory organs. Many valuable lives have been saved by the speedy and unstinted use of this physiological measure. Among other antagonisms of a similar nature may be mentioned that of digitalis to aconite, of strychnia to chloral, of the bromides and chloral to strychnia, of pilocarpin to atropia, and of nitrite of amyl to chloroform.

These are but mere outlines of what modern physiology is doing for practical medicine in one department alone. If we turn to germ-life and its influence in the causation of disease we at once open up a field that volumes could not exhaust. I shall dismiss the subject with a single instance of the work of physiology in this department of study.

No one cause of disease is so widespread in its field of action or so pernicious in its nature and influence as malaria. It plays upon the animal mechanism in many a morbid guise. It decimates cities and states, and renders uninhabitable many of the fairest and most fertile

spots on earth. Naturally it has always been an object of the highest interest to science to determine the nature of this subtle poison. Within the last two years this has been accomplished. Last year Klebs, of Germany, and Tommasi-Crudeli, of Italy, imbued with the belief that the cause of malarial poisoning was to be found in infusorial life, went down into the famous malarial marshes about Rome and made injections, beneath the skin of living animals, of the different kinds of earth, air, and water of those regions, carefully watching the effects in each instance, and with equal care examining the matter injected and the blood of the animals with the microscope. The results were successful beyond measure. They demonstrated the possibility of producing malarial fever by inoculation, and discovered in the matter used and in the blood and tissues of the animals thus infected the special cause of this disease—an infusoria which they named *bacillus malariæ*. Further pursuit of these investigations by the original experimenters and others has discovered the habitat of these little creatures in the systems of man and animals poisoned by malaria, the time in relation to a paroxysm of fever when they hatch and pour in countless myriads from their birthplaces in the body into the blood of the sufferer, and many other valuable facts concerning their nature and their relation to this widespread form of human suffering. Thus may we say of modern physiology that it has solved one of the profoundest and most interesting problems of the ages. What it has thus far done in the domain of natural science for the health and comfort of humanity is but an earnest of what it will yet do in the near future. It stands today the unchallenged leader, the brain, the genius of modern medicine.

Thirty years ago medicine still belonged to the domain of speculative philosophy. The cell theory, destined to work such wonderful changes, had not yet crossed the ocean with a sufficiency of vigor to exert any material influence. Those great phenomena of living matter which seemed otherwise inexplicable were summarily dismissed by attributing them to vitality. It was not until the restless mind of man, fretting under this yoke of vagueness, having asked itself anew the question, "What is vitality?" sought in a practical way its answer by bringing to bear upon living organisms all of the powers that modern art has placed within its command. The result of this course has been marked, and in a few years have we seen a new bent given to the study of medicine and new channels of thought thrust upon those who would keep abreast with the changed tide.

Thirty years ago the doctor who by the powers of a logical mind could with greatest skill weave plausible theories of disease readily took rank among the foremost thinkers in medicine, and nothing so

adapted him for his peculiar work as mental training in other and kindred realms of speculative thought. He was at the same time a Baconian philosopher and an erudite man of physic. Today the leaders are the workers. Their logic is skill in conducting experiment, and their erudition a mastery of such knowledge of nature and nature's laws as progressive science has opened up in every department of life.

You who would take high rank in the future history of medical science must bear these facts in mind. Your life must be one of constant labor in the laboratories of nature. Not a department of natural science exists but what is stored with facts bearing directly upon your own chosen field of study. To these allied fields must you often turn an inquiring mind. As you advance in knowledge you will see, one after another, many of the mysteries that to others surround the laws of life made clear to your comprehension by the aggressive arm of science. It is not enough, if you would seek preëminence, that you should study the researches of others. Building upon the practical knowledge you have thus far gained, you must, as well, be workers in the field.

As you tread the paths I have hastily indicated, and day by day grow in mental breadth and stature, you must never forget that there is a fixed limit to the progress of knowledge through human reason. You must ever remember that the eternal and illimitable realm of the infinite is as a sealed book to all human power, to be known to the intellectual nature of man solely by its unknowableness. We hear much in these times of a conflict between science and religion, and many an honest regret is expressed at their apparent antagonism. Such regrets are idle. There is no conflict between true science and true religion. Their paths, though often parallel, are yet ever distinct. To the one belongs the sublime domain of finite reason; to the other the infinite realm of faith. The votaries of each are alike struggling in their own feeble yet earnest way to elevate man and make of him a better and a happier creature, and not infrequently may they join hands for the common weal. It is the great work of the church in its relation to science to lend its strong arm to aid in the annihilation of error—a mighty power, and one that ever demands of its ally the strictest demonstration of every postulate. Thus to the church science owes not a little of the separation that has so far been accomplished of the chaff from the true grain of knowledge. Often indeed its zealous heel comes down alike on both, but truth in its adamantine incasement suffers not.

"Truth crushed to earth shall rise again;
The eternal years of God are hers;
While error wounded writhes in pain
And dies amid his worshipers."

For that student of science who, fascinated by its wondrous powers, fancies that it will in time unravel all of the mysteries of human life, I have the profoundest sorrow. For him who, dazzled by the brilliant scope of human reason, sees naught beyond it to reverence and adore, I hold a more than pity. Dreary indeed is the lot of such an one. Like some hideous monster of flesh and blood, his reason is a distorted thing, fit only to be shuddered at or receive our deep commiseration. There is that in the human heart that science can never eradicate, and that which true science every where recognizes as beyond its domain. It was manifested by the prehistoric races of man when they decked their dead with trinkets and tenderly sealed them in sacred caverns. It was the ruling spirit in Oriental and Egyptian, in Grecian and Roman paganism. It is rudely shown in the calm faith with which the savage turns his dying eyes toward the "happy hunting-grounds." The stately shafts of spotless marble that glisten in the morning sun through the graceful willows and fragrant evergreens of many a hallowed hillside tell in no doubtful numbers of the Christian's faith and hope. You and I and all of us, whatever our bias, whatever our creed, live every hour of our lives actuated in all of our nobler deeds by the resistless sway of an innate belief in our own immortality. It is this instinctive belief in an inner spiritual nature that leads man to look beyond mere human life and strive to so purify and elevate his innermost self as to merit and receive the plaudits of his own inexplicable conscience. The world has work for both science and religion to perform—work of the highest interest to man. Let each so labor in its proper sphere as to hasten the advent of the perfect man.

You have chosen the domain of science as the scene of your future labor. Strive to be great men in that domain. Strive to rise above all petty strife and sectionalism. Strive to feel that you have no conflict with any one or any thing except the darkness that still lowers upon the confines of human knowledge. Strive unceasingly, that so the intelligence of man may be widened and posterity blessed by your labors. An idle man of genius, when once asked to exert his talents for the good of posterity, sneeringly replied, "What has posterity done for me?" Ah! gentlemen, posterity may be slow, but it rarely forgets the truly worthy. "What has posterity done for me?" If you would see a tithe of what it has done for others, go with uncovered head and shoeless feet beneath the sacred arches of Westminster, or think but a moment of the scores of immortal dead whose very names are interwoven with every fiber of the precious fabric of human knowledge.

But a few weeks ago the cloud of death passed before one of the brightest stars in the firmament of literature. The wreaths of sacred

immortelles that loving hands have tenderly placed upon her fresh grave but feebly typify the undying reverence and love with which a grateful posterity will preserve through time the rare fruits of her gifted mind. In her unostentatious life the world of letters bowed at her feet as its acknowledged queen. The shock of her sudden death has not yet lifted its weight from the heart of humanity. She lived and labored, actuated throughout her whole life by an abiding faith in the justice of posterity. The yearnings of her soul, set to the music of impassioned words, may well be cherished in the innermost shrine of every heart. Let them be to each of you an ever-ready stimulus to increasing labor in the life you are now just entering.

"O, may I join the choir invisible
Of those immortal dead who live again
In minds made better by their presence.
So to live is heaven.
To make undying music in the world,
Breathing us beauteous order that controls
With growing sway the growing life of man—
So we inherit that sweet purity
For which we struggled, groaned, and agonized
With widening retrospect that held despair.
That better self shall live till human time
Shall fold its eyelids and the human sky
Be gathered like a scroll within the tomb,
Unread forever. This is life to come,
Which martyred men have made more glorious
For us who strive to follow. May I reach
That purest heaven, and be to other souls
That cup of strength in some great agony—
Enkindle generous ardor, feed pure love,
Beget the smiles that have no cruelty,
Be the sweet presence of a good diffused,
And in diffusion ever more intense
So shall I join that choir invisible
Whose music is the gladness of the world."

My task is done. As I close these pages and gather them for the final bow, you pass forever from beneath the immediate guidance of your alma mater. A moment more, and you will mingle with the throng of fair women and brave men who have gathered here to witness and applaud your triumph. As you pass through yonder doorway into life, inspiring music will waft to your ears the faculty benediction. Step proudly as you go. It is your wedding-march they play. Step firmly, for the coy and beauteous Hygeia, whom you have this day wed, is as exacting as she is fair, and brooks no wavering or divided

love. Catch the time and keep it, and march on through life undaunted, undismayed, until the final halt is sounded, and you stand triumphant and serene before the opening portals of eternity.

THE INACCURACY OF CLINICAL THERMOMETERS. — The following card from the Winchester Observatory of Yale College explains itself:

The competition of business, coupled with the entire absence, up to this time, of any large observatory in this country paying special attention to the thermometry to which authoritative appeal could be made has so affected the manufacture of thermometers for medical purposes that it seems necessary to issue a card briefly indicating the errors commonly found to exist, and to explain why, in this case, the representations of the dealers may be at fault through the want of a proper understanding of the subtle errors to which medical thermometers are liable.

Too great a desire to economize time, good material, and skilled labor has led, in the making of thermometers, to the following faults:

1. The graduation is sometimes started from one point of the scale, near the normal, and the size of the capillary tube is guessed at. No upper point being fixed by the maker, the higher graduations may be erroneous to the extent of several degrees.

2. Too much air separating the index from the column of mercury causes the index to rise with a jerky motion; air above the index forces the index down when the thermometer is taken away from the body. In some thermometers errors from this cause amount to two degrees at high temperatures.

3. New thermometers increase their readings rapidly during the first months after manufacture, so that instruments which were right when made may change their indications as much as two degrees within a year.

It will be seen that these errors are not such as the dealer can readily detect. Even in those cases where a dealer is provided with a standard thermometer with which comparisons could be made, it is a difficult matter to determine the errors of the standard itself; and the unsupported representations of dealers and druggists, therefore, though made in perfect good faith, can not, from the nature of the case, afford the physician satisfactory evidence that any thermometer he may buy is not affected with errors, which in many instances under our observation have amounted to several degrees.

Following the example of the Royal Society's Observatory at Kew,

at which, during the past year, upward of five thousand thermometers were examined, this observatory has established a department to which any physician or other person may send thermometers by mail or express, and upon the payment of a small fee receive certificates of their exact errors. The facilities are such that there is no good reason why physicians should not buy their new thermometers furnished with the Yale certificate by the dealers. In those cases where no certificate is furnished the uncertainty may amount to two degrees. It should be remembered that thermometers which the physician has had in his possession for many months are certain to have had the requisite seasoning, and therefore an old thermometer with a recent certificate is of more value than a new one or one about whose age there is doubt.

The observatory has been called upon within three months to certify about seven hundred thermometers from various parts of our country. The results of this work have demonstrated the gross inaccuracy of the cheaper clinical thermometers as commonly sold, and seem to render expedient the publication of this card calling the attention of physicians to these errors and the great difficulty of detecting them except with the appliances of an observatory devoted to this work.

LEONARD WALDO,
Astronomer in Charge.

DIED at his residence in Lexington, Ky., January 31st, Dr. J. M. Bruce. The following notice of the untimely event, prepared by his professional neighbors and friends, we take from a Lexington paper:

Dr. Bruce has long been identified with Lexington. Here he was born in 1822. From Transylvania University, located here, and for whose generous benefactor he was named, he received the degree of Doctor of Medicine in 1845, after which he spent nearly two years in Europe profitably visiting hospitals and listening to lectures of the eminent men of that day. Returning home, he began practice, which he continued through thirty-five years, until stopped by death, suddenly and almost without warning, on Monday last. He was elected to and discharged for years the duties of the delicate and responsible position of demonstrator of anatomy in his alma mater with credit and satisfaction.

He was in early life elected city physician, to which office he was repeatedly chosen; and it is believed that it was in the faithful discharge of the duties of that office, during the recent almost unprece-

dented severe winter, that he contracted the cold and disease which closed suddenly his earthly career.

Dr. Bruce will be long and justly remembered for his courage, skill, and successful treatment of smallpox in several epidemics, of which he was certainly *at the front;* while in his long official service and private practice he labored and did more for the poor than any other practitioner in our midst has done.

KENTUCKY STATE MEDICAL SOCIETY.—The following circular is just to hand:

The twenty-sixth annual meeting of the Kentucky State Medical Society will be held in Covington, beginning on Tuesday the 5th day of April. Your attention is called to the time of meeting *now* in order to favor the preparation of papers or reports upon such subjects as you may select. Voluntary papers will receive equal attention with reports of committees, and abundant time will be devoted to their discussion.

The programme indicating each day's proceedings will be issued on March 15th. Please notify the undersigned by that date of such papers, with title, as you may elect to contribute. The meeting promises to be one of unusual interest and importance to Kentucky physicians, and your attendance upon and participation in its proceedings are earnestly and respectfully invited.

I am, very respectfully, etc.,

L. S. MCMURTRY, *Secretary.*